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ORNITHOLOGICAL BIOGRAPHY.

ORNITHOLOGICAL BIOGRAPHY,

OR AN ACCOUNT OF THE HABITS OF THE

BIRDS OF THE UNITED STATES OF AMERICA,

ACCOMPANIED BY DESCRIPTIONS OF THE OBJECTS REPRESENTED
IN THE WORK ENTITLED

THE BIRDS OF AMERICA,

AND INTERSPERSED WITH DELINEATIONS OF AMERICAN
SCENERY AND MANNERS.

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INTRODUCTION.

TEN years have now elapsed since the first number of my *Illustrations of the Birds of America* made its appearance. At that period I calculated that the engravers would take sixteen years in accomplishing their task ; and this I announced in my prospectus, and talked of to my friends. Of the latter not a single individual seemed to have the least hope of my success, and several strongly advised me to abandon my plans, dispose of my drawings, and return to my country. I listened with attention to all that was urged on the subject, and often felt deeply depressed, for I was well aware of many of the difficulties to be surmounted, and perceived that no small sum of money would be required to defray the necessary expenses. Yet never did I seriously think of abandoning the cherished object of my hopes. When I delivered the first drawings to the engraver, I had not a single subscriber. Those who knew me best called me rash ; some wrote to me that they did not expect to see a second fasciculus ; and others seemed to anticipate the total failure of my enterprise. But my heart was nerved, and my reliance on that Power, on whom all must depend, brought bright anticipations of success.

Having made arrangements for meeting the first difficulties, I turned my attention to the improvement of my drawings, and began to collect from the pages of my journals the scattered notes which referred to the habits of the birds represented by them. I worked early and late, and glad I was to perceive that the more I laboured the more I improved. I was happy, too, to find, that in general each succeeding plate was better than its predecessor, and when those who had at first endeavoured to dissuade me from undertaking so vast an enterprise, complimented me on my more favourable prospects, I could not but feel happy. Number after number appeared in regular succession, until at the end of four years of anxiety, my engraver, Mr HAVELL, presented me with the First Volume of the Birds of America.

Convinced, from a careful comparison of the plates, that at least there had been no falling off in the execution, I looked forward with confidence to the termination of the next four years' labour. Time passed on, and I returned from the forests and wilds of the western world to congratulate my friend HAVELL, just when the last plate of the second volume was finished.

About that time, a nobleman called upon me with his family, and requested me to shew them some of the original drawings, which I did with the more pleasure that my visitors possessed a knowledge of Ornithology. In the course of our conversation, I was asked how long it might be until the work should be finished. When I mentioned eight years more, the nobleman shrugged up his shoulders, and sighing, said, "I may not see it finished, but my children will, and you may please to add my name to your list of subscribers." The young people exhibited a mingled expression of joy and sorrow, and when I with them strove to dispel the cloud that seemed to hang over

their father's mind, he smiled, bade me be sure to see that the whole work should be punctually delivered, and took his leave. The solemnity of his manner I could not forget for several days ; I often thought that neither might I see the work completed, but at length I exclaimed " my sons may." And now that another volume, both of my Illustrations and of my Biographies is finished, my trust in Providence is augmented, and I cannot but hope that myself and my family together may be permitted to see the completion of my labours.

I have performed no long journey since I last parted from you, and therefore I have little of personal history to relate to you. I have spent the greater part of the interval in London and Edinburgh, in both which cities I have continued to enjoy a social intercourse with many valued friends. In the former, it has been my good fortune to add to the list the names of WILLIAM YARRELL, Esq., Dr BELL, Dr BOOTT, Captain JAMES CLARK ROSS, R. N., and Dr RICHARDSON. From Mr YARRELL and the two latter gentlemen, both well known to you as intrepid and successful travellers, I have received much valuable information, as well as precious specimens of birds and eggs, collected in the desolate regions of the extreme north. My anxiety to compare my specimens with those of the Zoological Society of London, induced me to request permission to do so, which the Council freely accorded. For this favour I now present my warm acknowledgments to the Noble EARL of DERBY, the Members of the Council, their amiable Secretary Mr BENNETT, and to Mr GOULD, who had the kindness to select for me such specimens as I wanted. My friend Professor JAMESON of Edinburgh has been equally kind in allowing me the means of comparing specimens. From America I have received some

valuable information, and many interesting specimens of birds and eggs, for which I am indebted to the Rev. JOHN BACHMAN, Dr RICHARD HARLAN, Dr-GEORGE PARKMAN, EDWARD HARRIS, Esq. and others.

The number of new species described in the present volume is not great. Among them, however, you will find the largest true Heron hitherto discovered in the United States. I have corrected some errors committed by authors, and have added to our Fauna several species which, although described by European writers, had not been observed in America. The habits of many species previously unknown have also been given in detail.

Having long ago observed, in works on the Birds of the United States, the omission of the females and the different appearances produced by the change of season in most water birds, I have represented the male accompanied by his mate, and, in as many instances as possible, the young also. The technical descriptions have been given at greater length than in the former volumes, with the view of preventing error even in comparing dried skins with either the figures or the descriptions. I have also given the average measurement of the eggs, which I regret I had omitted to do in the other volumes ; an error which I purpose to atone for by presenting you, in the last number of my Illustrations, with figures of all those which I have collected.

The figures in the third volume of my Illustrations amount to one hundred and eighty-two, and are thus much fewer than those in either of the preceding volumes. This, however, was rendered necessary by the comparatively large size of the originals, the aquatic species of Birds greatly exceeding the

terrestrial in this respect. Many of them in fact are so large that only a single figure could be given, and that not always in so good an attitude as I could have wished. For this reason I have sometimes been obliged to give the figure of the young in a separate plate; and this I shall in a few cases continue to do, in order to correct the errors of authors respecting certain species, which I have proved to be merely nominal. Still the number contained in the three volumes being six hundred and seventy-four, there are more than two to each species.

The engraving and colouring of the plates of this volume have generally been considered as much superior even to those of the second. Indeed, some of my patrons, both in Europe and America, have voluntarily expressed their conviction of the superiority of these plates. This is the more gratifying to me, that it proves the unremitting care and perseverance of Mr HAVELL and his assistants, of whom I mention with approbation Messrs BLAKE and EDINGTON.

The Ornithology of the United States may be said to have been commenced by ALEXANDER WILSON, whose premature death prevented him from completing his labours. It is unnecessary for me to say how well he performed the task which he had imposed upon himself; for all naturalists, and many who do not aspire to the name, acknowledge his great merits. But although he succeeded in observing and obtaining a very great number of our birds, he left for others many species which he was unable to procure. These have been sought for with eagerness, and not without success, by persons who have engaged in the pursuit with equal ardour. The PRINCE OF MUSIGNANO, full of enthusiasm, having his judgment matured by long observation, and his mind stored with useful learning, collected in

our woods and prairies, by our great rivers, and along our extended shores, materials sufficient for four superb volumes, intended as a continuation of WILSON'S work. THOMAS NUTTALL, equally learned and enthusiastic, next entered the field. His *Manual of our Birds* contains a mass of useful information, and is for the most part excellent. Many others have, in various ways, endeavoured to extend our knowledge on this subject ; but with the exception of THOMAS SAY, none have published their discoveries in a connected form. Dr HARLAN has given to the world an excellent account of our *Mammalia* ; various works on *Mollusca* have appeared, and at present Dr HORLBECK of Charleston is engaged in publishing an account of our *Reptiles*.

Along our extended frontiers I have striven to observe and gather whatever had escaped the notice of the different collectors ; and now, kind Reader, to prove to you that if not so fortunate as I had wished, I yet have done all that was in my power, I present you with a third volume of *Ornithological Biographies*, in which you will find some account of about sixty species of *Water Birds* not included in the works of WILSON. These, at one season or other, are to be met with along the shores or streams of the United States. Some of them are certainly very rare, others remarkable in form and habits ; but all, I trust, you will find distinct from each other, and not inaccurately described.

The difficulties which are to be encountered in studying the habits of our *Water Birds* are great. He who follows the feathered inhabitants of the forests and plains, however rough or tangled the paths may be, seldom fails to obtain the objects of his pursuit, provided he be possessed of due enthusiasm and per-

severance. The Land Bird flits from bush to bush, runs before you, and seldom extends its flight beyond the range of your vision. It is very different with the Water Bird, which sweeps afar over the wide ocean, hovers above the surges, or betakes itself for refuge to the inaccessible rocks on the shore. There, on the smooth sea-beach, you see the lively and active Sand-piper ; on that rugged promontory the Dusky Cormorant ; under the dark shade of yon cypress the Ibis and Heron ; above you in the still air floats the Pelican or the Swan ; while far over the angry billows scour the Fulmar and the Frigate bird. If you endeavour to approach these birds in their haunts, they betake themselves to flight, and speed to places where they are secure from your intrusion.

But the scarcer the fruit, the more prized it is ; and seldom have I experienced greater pleasures than when on the Florida Keys, under a burning sun, after pushing my bark for miles over a soapy flat, I have striven all day long, tormented by myriads of insects, to procure a heron new to me, and have at length succeeded in my efforts. And then how amply are the labours of the naturalist compensated, when, after observing the wildest and most distrustful birds, in their remote and almost inaccessible breeding places, he returns from his journeys, and relates his adventures to an interested and friendly audience.

I look forward to the summer of 1838 with an anxious hope that I may then be able to present you with the last plate of my Illustrations, and the concluding volume of my Biographies. To render these volumes as complete as possible, I intend to undertake a journey to the southern and western limits of the Union, with the view of obtaining a more accurate knowledge of the birds of those remote and scarcely inhabited regions.

On this tour I shall be accompanied by my youngest son, while the rest of my family will remain in Britain, to direct the progress of my publication.

In concluding these prefatory remarks, I have to inform you that one of the tail-pieces in my second volume, entitled "A Moose Hunt," was communicated to me by my young friend THOMAS LINCOLN of Dennisville in Maine ; and that it was at his particular request, and much against my wishes, that his name was not mentioned at the time. I have now, however, judged it proper to make this statement.

JOHN J. AUDUBON.

EDINBURGH, 1st December 1835.

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ORNITHOLOGICAL BIOGRAPHY.

THE CANADA GOOSE.

ANSER CANADENSIS, VIEILL.

PLATE CCI. MALE AND FEMALE.

ALTHOUGH the Canada Goose is considered as a northern species, the number of individuals that remain at all seasons in the milder latitudes, and in different portions of the United States, fully entitles this bird to be looked upon as a permanent resident there. It is found to breed sparingly at the present day, by many of the lakes, lagoons, and large streams of our Western Districts, on the Missouri, the Mississippi, the lower parts of the Ohio, on Lake Erie, the lakes farther north, and in several large pools situated in the interior of the eastern parts of the States of Massachusetts and Maine. As you advance farther toward the east and north, you find it breeding more abundantly. While on my way to Labrador, I found it in the Magdeleine Islands, early in June, sitting on its eggs. In the Island of Anticosti there is a considerable stream, near the borders of which great numbers are said to be annually reared; and in Labrador these birds breed in every suitable marshy plain. The greater number of those which visit us from still more northern regions, return in the vernal season, like many other species, to the dismal countries which gave them birth.

Few if any of these birds spend the winter in Nova Scotia, my friend Mr THOMAS M'CULLOCH having informed me that he never saw one about Pictou at that period. In spring, as they proceed northward, thousands are now and then seen passing high in the air; but in autumn, the flocks are considerably smaller, and fly much lower. During their spring movements, the principal places at which they stop to wait for milder days are

Bay Chaleur, the Magdeleine Islands, Newfoundland, and Labrador, at all of which some remain to breed and spend the summer.

The general spring migration of the Canada Goose, may be stated to commence with the first melting of the snows in our Middle and Western Districts, or from the 20th of March to the end of April; but the precise time of its departure is always determined by the advance of the season, and the vast flocks that winter in the great savannahs or swampy prairies south-west of the Mississippi, such as exist in Opellousas, on the borders of the Arkansas River, or in the dismal "Ever Glades" of the Floridas, are often seen to take their flight, and steer their course northward, a month earlier than the first of the above mentioned periods. It is indeed probable that the individuals of a species most remote from the point at which the greater number ultimately assemble, commence their flight earlier than those which have passed the winter in stations nearer to it.

It is my opinion that all the birds of this species, which leave our States and territories each spring for the distant north, pair before they depart. This, no doubt, necessarily results from the nature of their place of summer residence, where the genial season is so short as scarcely to afford them sufficient time for bringing up their young and renewing their plumage, before the rigours of advancing winter force them to commence their flight towards milder countries. This opinion is founded on the following facts:—I have frequently observed large flocks of Geese, in ponds, on marshy grounds, or even on dry sand bars, the mated birds renewing their courtship as early as the month of January, while the other individuals would be contending or coquetting for hours every day, until all seemed satisfied with the choice they had made, after which, although they remained together, any person could easily perceive that they were careful to keep in pairs. I have observed also that the older the birds, the shorter were the preliminaries of their courtship, and that the barren individuals were altogether insensible to the manifestations of love and mutual affection that were displayed around them. The bachelors and old maids, whether in regret, or not caring to be disturbed by the bustle, quietly moved aside, and lay down on the grass or sand at some distance from the rest; and whenever the flocks rose on wing, or betook themselves to the water, these forlorn birds always kept behind. This mode of preparing for the breeding season has appeared to me the more remarkable, that, on reaching the place appointed for their summer

residence, the birds of a flock separate in pairs, which form their nests and rear their young at a considerable distance from each other.

It is extremely amusing to witness the courtship of the Canada Goose in all its stages; and let me assure you, reader, that although a Gander does not strut before his beloved with the pomposity of a Turkey, or the grace of a Dove, his ways are quite as agreeable to the female of his choice. I can imagine before me one who has just accomplished the defeat of another male after a struggle of half an hour or more. He advances gallantly towards the object of contention, his head scarcely raised an inch from the ground, his bill open to its full stretch, his fleshy tongue elevated, his eyes darting fiery glances, and as he moves he hisses loudly, while the emotion which he experiences, causes his quills to shake, and his feathers to rustle. Now he is close to her who in his eyes is all loveliness; his neck bending gracefully in all directions, passes all round her, and occasionally touches her body; and as she congratulates him on his victory, and acknowledges his affection, they move their necks in a hundred curious ways. At this moment fierce jealousy urges the defeated gander to renew his efforts to obtain his love; he advances apace, his eye glowing with the fire of rage; he shakes his broad wings, ruffles up his whole plumage, and as he rushes on the foe, hisses with the intensity of anger. The whole flock seems to stand amazed, and opening up a space, the birds gather round to view the combat. The bold bird who has been caressing his mate, scarcely deigns to take notice of his foe, but seems to send a scornful glance towards him. He of the mortified feelings, however, raises his body, half opens his sinewy wings, and with a powerful blow, sends forth his defiance. The affront cannot be borne in the presence of so large a company, nor indeed is there much disposition to bear it in any circumstances; the blow is returned with vigour, the aggressor reels for a moment, but he soon recovers, and now the combat rages. Were the weapons more deadly, feats of chivalry would now be performed; as it is, thrust and blow succeed each other like the strokes of hammers driven by sturdy forgers. But now, the mated gander has caught hold of his antagonist's head with his bill; no bull-dog could cling faster to his victim; he squeezes him with all the energy of rage, lashes him with his powerful wings, and at length drives him away, spreads out his pinions, runs with joy to his mate, and fills the air with cries of exultation.

But now, see yonder, not a couple, but half a dozen of ganders are

engaged in battle ! Some desperado, it seems, has fallen upon a mated bird, and several bystanders, as if sensible of the impropriety of such conduct, rush to the assistance of the wronged one. How they strive and tug, biting, and striking with their wings ! and how their feathers fly about ! Exhausted, abashed, and mortified, the presumptuous intruder retreats in disgrace ;—there he lies almost breathless on the sand !

Such are the conflicts of these ardent lovers, and so full of courage and of affection towards their females are they, that the approach of a male invariably ruffles their tempers as well as their feathers. No sooner has the goose laid her first egg, than her bold mate stands almost erect by her side, watching even the rustling sound of the breeze. The least noise brings from him a sound of anger. Should he spy a racoon making its way among the grass, he walks up to him undauntedly, hurls a vigorous blow at him, and drives him instantly away. Nay I doubt if man himself, if unarmed, would come off unscathed in such an encounter. The brave gander does more ; for, if imminent danger excite him, he urges his mate to fly off, and resolutely remains near the nest until he is assured of her safety, when he also betakes himself to flight, mocking as it were by his notes his disappointed enemy.

Suppose all to be peace and quiet around the fond pair, and the female to be sitting in security upon her eggs. The nest is placed near the bank of a noble stream or lake ; the clear sky is spread over the scene, the bright beams glitter on the waters, and a thousand odorous flowers give beauty to the swamp which of late was so dismal. The gander passes to and fro over the liquid element, moving as if lord of the waters ; now he inclines his head with a graceful curve, now sips to quench his thirst ; and, as noontide has arrived, he paddles his way towards the shore, to relieve for a while his affectionate and patient consort. The lisping sounds of their offspring are heard through the shell ; their little bills have formed a breach in the inclosing walls ; full of life, and bedecked with beauty, they come forth, with tottering steps and downy covering. Toward the water they now follow their careful parent, they reach the border of the stream, their mother already floats on the loved element, one after another launches forth, and now the flock glides gently along. What a beautiful sight ! Close by the grassy margin, the mother slowly leads her innocent younglings ; to one she shews the seed of the floating grass, to another points out the crawling slug. Her careful eye watches the cruel turtle, the garfish, and the pike, that are

hurking for their prey, and, with head inclined, she glances upwards to the eagle or the gull that are hovering over the water in search of food. A ferocious bird dashes at her young ones; she instantly plunges beneath the surface, and, in the twinkling of an eye, her brood disappear after her; now they are among the thick rushes, with nothing above water but their little bills. The mother is marching towards the land, having lisped to her brood in accents so gentle that none but they and her mate can understand their import, and all are safely lodged under cover until the disappointed eagle or gull bears away.

More than six weeks have now elapsed. The down of the goslings, which was at first soft and tufty, has become coarse and hairlike. Their wings are edged with quills, and their bodies bristled with feathers. They have increased in size, and, living in the midst of abundance, they have become fat, so that on shore they make their way with difficulty, and as they are yet unable to fly, the greatest care is required to save them from their numerous enemies. They grow apace, and now the burning days of August are over. They are able to fly with ease from one shore to another, and as each successive night the hoarfrosts cover the country, and the streams are closed over by the ice, the family joins that in their neighbourhood, which is also joined by others. At length they spy the advance of a snow-storm, when the ganders with one accord sound the order for their departure.

After many wide circlings, the flock has risen high in the thin air, and an hour or more is spent in teaching the young the order in which they are to move. But now, the host has been marshalled, and off it starts, shewing, as it proceeds, at one time an extended front, at another a single lengthened file, and now arraying itself in an angular form. The old males advance in front, the females follow, the young come in succession according to their strength, the weakest forming the rear. Should one feel fatigued, his position is changed in the ranks, and he assumes a place in the wake of another, who cleaves the air before him; perhaps the parent bird flies for a while by his side to encourage him. Two, three, or more days elapse before they reach a secure resting place. The fat with which they were loaded at their departure has rapidly wasted; they are fatigued, and experience the keen gnawings of hunger; but now they spy a wide estuary, towards which they direct their course. Alighting on the water, they swim to the beach, stand, and gaze around them; the young full of joy, the old full of fear, for well are they aware that many foes

have been waiting their arrival. Silent all night remains the flock, but not inactive; with care they betake themselves to the grassy shores, where they allay the cravings of appetite, and recruit their wasted strength. Soon as the early dawn lightens the surface of the deep they rise into the air, extend their lines, and proceed southward, until arriving in some place where they think they may be enabled to rest in security, they remain during the winter. At length, after many annoyances, they joyfully perceive the return of spring, and prepare to fly away from their greatest enemy man.

The Canada Goose often arrives in our Western and Middle Districts as early as the beginning of September, and does not by any means confine itself to the seashore. Indeed, my opinion is, that for every hundred seen during the winter along our large bays and estuaries, as many thousands may be found in the interior of the country, where they frequent the large ponds, rivers, and wet savannahs. During my residence in the State of Kentucky, I never spent a winter without observing immense flocks of these birds, especially in the neighbourhood of Henderson, where I have killed many hundreds of them, as well as on the Falls of the Ohio at Louisville, and in the neighbouring country, which abounds in ponds overgrown with grasses and various species of *Nymphææ*, on the seeds of which they greedily feed. Indeed all the lakes situated within a few miles of the Missouri and Mississippi, or their tributaries, are still amply supplied with them from the middle of autumn to the beginning of spring. In these places, too, I have found them breeding, although sparingly. It seems to me more than probable, that the species bred abundantly in the temperate parts of North America before the white population extended over them. This opinion is founded on the relations of many old and respectable citizens of our country, and in particular of General GEORGE CLARK, one of the first settlers on the banks of the Ohio, who, at a very advanced age, assured me that, fifty years before the period when our conversation took place (about seventy-five years from the present time), wild geese were so plentiful at all seasons of the year, that he was in the habit of having them shot to feed his soldiers, then garrisoned near Vincennes, in the present State of Indiana. My father, who travelled down the Ohio shortly after BRADOCK's defeat, related the same to me; and I, as well as many persons now residing at Louisville in Kentucky, well remember that, twenty-five or thirty years ago, it was quite easy to procure young Canada Geese in the ponds around. So late as

1819, I have met with the nests, eggs, and young of this species near Henderson. However, as I have already said, the greater number remove far north to breed. I have never heard of an instance of their breeding in the Southern States. Indeed, so uncongenial to their constitution seems the extreme heat of these parts to be, that the attempts made to rear them in a state of domestication very rarely succeed.

The Canada Goose, when it remains with us to breed, begins to form its nest in March, making choice of some retired place not far from the water, generally among the rankest grass, and not unfrequently under a bush. It is carefully formed of dry plants of various kinds, and is of a large size, flat, and raised to the height of several inches. Once only did I find a nest elevated above the ground. It was placed on the stump of a large tree, standing in the centre of a small pond, about twenty feet high, and contained five eggs. As the spot was very secluded, I did not disturb the birds, anxious as I was to see in what manner they should convey the young to the water. But in this I was disappointed, for, on going to the nest, near the time at which I expected the process of incubation to terminate, I had the mortification to find that a racoon, or some other animal, had destroyed the whole of the eggs, and that the birds had abandoned the place. The greatest number of eggs which I have found in the nest of this species was nine, which I think is more by three than these birds usually lay in a wild state. In the nests of those which I have had in a domesticated state, I have sometimes counted as many as eleven, several of them, however, usually proving unproductive. The eggs measure, on an average, $3\frac{1}{4}$ inches by $2\frac{1}{4}$, are thick shelled, rather smooth, and of a very dull yellowish-green colour. The period of incubation is twenty-eight days. They never have more than one brood in a season, unless their eggs are removed or broken at an early period.

The young follow their parents to the water a day or two after they have issued from the egg, but generally return to land to repose in the sunshine in the evening, and pass the night there under their mother, who employs all imaginable care to ensure their comfort and safety, as does her mate, who never leaves her during incubation for a longer time than is necessary for procuring food, and takes her place at intervals. Both remain with their brood until the following spring. It is during the breeding-season that the gander displays his courage and strength to the greatest advantage. I knew one that appeared larger than usual, and of which all the lower parts were of a rich cream colour. It returned three

years in succession to a large pond a few miles from the mouth of Green River in Kentucky, and whenever I visited the nest, it seemed to look upon me with utter contempt. It would stand in a stately attitude, until I reached within a few yards of the nest, when suddenly lowering its head, and shaking it as if it were dislocated from the neck, it would open its wings, and launch into the air, flying directly at me. So daring was this fine fellow, that in two instances he struck me a blow with one of his wings on the right arm, which, for an instant, I thought, was broken. I observed that immediately after such an effort to defend his nest and mate, he would run swiftly towards them, pass his head and neck several times over and around the female, and again assume his attitude of defiance.

Always intent on making experiments, I thought of endeavouring to conciliate this bold son of the waters. For this purpose I always afterwards took with me several ears of corn, which I shelled, and threw towards him. It remained untouched for several days; but I succeeded at last, and before the end of a week both birds fed freely on the grain even in my sight! I felt much pleasure on this occasion, and repeating my visit daily, found, that before the eggs were hatched, they would allow me to approach within a few feet of them, although they never suffered me to touch them. Whenever I attempted this the male met my fingers with his bill, and bit me so severely that I gave it up. The great beauty and courage of the male rendered me desirous of obtaining possession of him. I had marked the time at which the young were likely to appear, and on the preceding day I baited with corn a large coop made of twine, and waited until he should enter. He walked in, I drew the string, and he was my prisoner. The next morning the female was about to lead her offspring to the river, which was distant nearly half a mile, when I caught the whole of the young birds, and with them the mother too, who came within reach in attempting to rescue one of her brood, and had them taken home. There I took a cruel method of preventing their escape, for with a knife I pinioned each of them on the same side, and turned them loose in my garden, where I had a small but convenient artificial pond. For more than a fortnight, both the old birds appeared completely cowed. Indeed, for some days I felt apprehensive that they would abandon the care of the young ones. However, with much attention, I succeeded in rearing the latter by feeding them abundantly with the larvæ of locusts, which they ate greedily, as well as with corn-meal moistened with water, and the whole flock, consisting of eleven

individuals, went on prosperously. In December the weather became intensely cold, and I observed that now and then the gander would spread his wings, and sound a loud note, to which the female first, and then all the young ones in succession, would respond, when they would all run as far as the ground allowed them in a southerly direction, and attempt to fly off. I kept the whole flock three years. The old pair never bred while in my possession, but two pairs of the young ones did, one of them raising three, the other seven. They all bore a special enmity to dogs, and shewed dislike to oats; but they manifested a still greater animosity towards an old swan and a wild turkey-cock which I had. I found them useful in clearing the garden of slugs and snails; and although they now and then nipped the vegetables, I liked their company. When I left Henderson, my flock of geese was given away, and I have not since heard how it has fared with them.

On one of my shooting excursions in the same neighbourhood, I chanced one day to kill a wild Canada Goose, which, on my return, was sent to the kitchen. The cook, while dressing it, found in it an egg ready for being laid, and brought it to me. It was placed under a common hen, and in due time hatched. Two years afterwards the bird thus raised, mated with a male of the same species, and produced a brood. This goose was so gentle that she would suffer any person to caress her, and would readily feed from the hand. She was smaller than usual, but in every other respect as perfect as any I have ever seen. At the period of migration she shewed by her movements less desire to fly off than any other I have known; but her mate, who had once been free, did not participate in this apathy.

I have not been able to discover why many of those birds which I have known to have been reared from the egg, or to have been found when very young and brought up in captivity, were so averse to reproduce, unless they were naturally sterile. I have seen several that had been kept for more than eight years, without ever mating during that period, while other individuals had young the second spring after their birth. I have also observed that an impatient male would sometimes abandon the females of his species, and pay his addresses to a common tame goose, by which a brood would in due time be brought up, and would thrive. That this tardiness is not the case in the wild state I feel pretty confident, for I have observed having broods of their own many individuals which, by their size, the dullness of their plumage, and such other marks as are known to the practi-

cal ornithologist, I judged to be not more than fifteen or sixteen months old. I have therefore thought that in this, as in many other species, a long series of years is necessary for counteracting the original wild and free nature which has been given them; and indeed it seems probable that our attempts to domesticate many species of wild fowls, which would prove useful to mankind, have often been abandoned in despair, when a few years more of constant care might have produced the desired effect.

The Canada Goose, although immediately after the full development of its young it becomes gregarious, does not seem to be fond of the company of any other species. Thus, whenever the White-fronted Goose, the Snow Goose, the Brent Goose, or others, alight in the same ponds, it forces them to keep at a respectful distance; and during its migrations I have never observed a single bird of any other kind in its ranks.

The flight of this species of Goose is firm, rather rapid, and capable of being protracted to a great extent. When once high in the air, they advance with extreme steadiness and regularity of motion. In rising from the water or from the ground, they usually run a few feet with outspread wings; but when suddenly surprised and in full plumage, a single spring on their broad webbed feet is sufficient to enable them to get on wing. While travelling to some considerable distance, they pass through the air at the height of about a mile, steadily following a direct course towards the point to which they are bound. Their notes are distinctly heard, and the various changes made in the disposition of their ranks are easily seen. But although on these occasions they move with the greatest regularity, yet when they are slowly advancing from south to north at an early period of the season, they fly much lower, alight more frequently, and are more likely to be bewildered by suddenly formed banks of fog, or by passing over cities or arms of the sea where much shipping may be in sight. On such occasions great consternation prevails among them, they crowd together in a confused manner, wheel irregularly, and utter a constant cackling resembling the sounds from a disconcerted mob. Sometimes the flock separates, some individuals leave the rest, proceed in a direction contrary to that in which they came, and after a while, as if quite confused, sail towards the ground, once alighted on which they appear to become almost stupified, so as to suffer themselves to be shot with ease, or even knocked down with sticks. This I have known to take place on many occasions, besides those of which I have myself been a witness. Heavy snow-storms also cause them great distress, and in the midst

of them some have been known to fly against beacons and lighthouses, dashing their heads against the walls in the middle of the day. In the night they are attracted by the lights of these buildings, and now and then a whole flock is caught on such occasions. At other times their migrations northward are suddenly checked by a change of weather, the approach of which seems to be well known to them, for they will suddenly wheel and fly back in a southern direction several hundred miles. In this manner I have known flocks to return to the places which they had left a fortnight before. Nay even during the winter months, they are keenly sensible to changes of temperature, flying north or south in search of feeding-grounds, with so much knowledge of the future state of the weather, that one may be assured when he sees them proceeding southward in the evening, that the next morning will be cold, and *vice versa*.

The Canada Goose is less shy when met with far inland, than when on the sea-coast, and the smaller the ponds or lakes to which they resort, the more easy it is to approach them. They usually feed in the manner of Swans and fresh-water Ducks, that is, by plunging their heads towards the bottom of shallow ponds or the borders of lakes and rivers, immersing their fore parts, and frequently exhibiting their legs and feet with the posterior portion of their body elevated in the air. They never dive on such occasions. If feeding in the fields or meadows, they nip the blades of grass sidewise, in the manner of the Domestic Goose, and after rainy weather, they are frequently seen rapidly patting the earth with both feet, as if to force the earth-worms from their burrows. If they dabble at times with their bills in muddy water, in search of food, this action is by no means so common with them as it is with Ducks, the Mallard for example. They are extremely fond of alighting in corn-fields covered with tender blades, where they often remain through the night and commit great havoc. Wherever you find them, and however remote from the haunts of man the place may be, they are at all times so vigilant and suspicious, that it is extremely rare to surprise them. In keenness of sight and acuteness of hearing, they are perhaps surpassed by no bird whatever. They act as sentinels towards each other, and during the hours at which the flock reposes, one or more ganders stand on the watch. At the sight of cattle, horses, or animals of the deer kind, they are seldom alarmed, but a bear or a cougar is instantly announced, and if on such occasions the flock is on the ground near water, the birds immediately betake themselves in silence to the latter, swim to the middle of

the pond or river, and there remain until danger is over. Should their enemies pursue them in the water, the males utter loud cries, and the birds arrange themselves in close ranks, rise simultaneously in a few seconds, and fly off in a compact body, seldom at such times forming lines or angles, it being in fact only when the distance they have to travel is great that they dispose themselves in those forms. So acute is their sense of hearing, that they are able to distinguish the different sounds or footsteps of their foes with astonishing accuracy. Thus the breaking of a dry stick by a deer is at once distinguished from the same accident occasioned by a man. If a dozen of large turtles drop into the water, making a great noise in their fall, or if the same effect is produced by an alligator, the Wild Goose pays no regard to it; but however faint and distant may be the sound of an Indian's paddle, that may by accident have struck the side of his canoe, it is at once marked, every individual raises its head and looks intently towards the place from which the noise has proceeded, and in silence all watch the movements of their enemy.

These birds are extremely cunning also, and should they conceive themselves unseen, they silently move into the tall grasses by the margin of the water, lower their heads, and lie perfectly quiet until the boat has passed by. I have seen them walk off from a large frozen pond into the woods, to elude the sight of the hunter, and return as soon as he had crossed the pond. But should there be snow on the ice or in the woods, they prefer watching the intruder, and take to wing long before he is within shooting distance, as if aware of the ease with which they could be followed by their tracks over the treacherous surface.

The Canada Geese are fond of returning regularly to the place which they have chosen for resting in, and this they continue to do until they find themselves greatly molested while there. In parts of the country where they are little disturbed, they seldom go farther than the nearest sandbank or the dry shore of the places in which they feed; but in other parts they retire many miles to spots of greater security, and of such extent as will enable them to discover danger long before it can reach them. When such a place is found, and proves secure, many flocks resort to it, but alight apart in separate groups. Thus, on some of the great sandbars of the Ohio, the Mississippi, and other large streams, congregated flocks, often amounting to a thousand individuals, may be seen at the approach of night, which they spend there, lying on the sand within a few feet of each other, every flock having its own sentinel. In the dawn of

next morning they rise on their feet, arrange and clean their feathers, perhaps walk to the water to drink, and then depart for their feeding grounds.

When I first went to the Falls of the Ohio, the rocky shelvings of which are often bare for fully half a mile, thousands of wild geese of this species rested there at night. The breadth of the various channels that separate the rocky islands from either shore, and the rapidity of the currents which sweep along them, render this place of resort more secure than most others. The wild geese still betake themselves to these islands during winter for the same purpose, but their number has become very small; and so shy are these birds at present in the neighbourhood of Louisville, that the moment they are disturbed at the ponds where they go to feed each morning, were it but by the report of a single gun, they immediately return to their rocky asylums. Even there, however, they are by no means secure, for it not unfrequently happens that a flock alights within half gunshot of a person concealed in a pile of drifted wood, whose aim generally proves too true for their peace. Nay, I knew a gentleman, who had a large mill opposite Rock Island, and who used to kill the poor geese at the distance of about a quarter of a mile, by means of a small cannon heavily charged with rifle bullets; and, if I recollect truly, Mr TARASCON in this manner not unfrequently obtained a dozen or more geese at a shot. This was done at dawn, when the birds were busily engaged in trimming their plumage with the view of flying off in a few minutes to their feeding grounds. This war of extermination could not last long: the geese deserted the fatal rock, and the great gun of the mighty miller was used only for a few weeks.

While on the water, the Canada Goose moves with considerable grace, and in its general deportment resembles the wild Swan, to which I think it is nearly allied. If wounded in the wing, they sometimes dive to a small depth, and make off with astonishing address, always in the direction of the shore, the moment they reach which, you see them sneaking through the grass or bushes, their necks extended an inch or so above the ground, and in this manner proceeding so silently, that, unless closely watched, they are pretty sure to escape. If shot at and wounded while on the ice, they immediately walk off in a dignified manner, as if anxious to make you believe that they have not been injured, emitting a loud note all the while; but the instant they reach the shore they become silent, and make off in the manner described. I was much surprised one day,

while on the coast of Labrador, to see how cunningly one of these birds, which, in consequence of the moult, was quite unable to fly, managed for a while to elude our pursuit. It was first perceived at some distance from the shore, when the boat was swiftly rowed towards it, and it swam before us with great speed, making directly towards the land; but when we came within a few yards of it, it dived, and nothing could be seen of it for a long time. Every one of the party stood on tiptoe to mark the spot at which it should rise, but all in vain, when the man at the rudder accidentally looked down over the stern and there saw the goose, its body immersed, the point of its bill alone above water, and its feet busily engaged in propelling it so as to keep pace with the movements of the boat. The sailor attempted to catch it while within a foot or two of him, but with the swiftness of thought it shifted from side to side, fore and aft, until delighted at having witnessed so much sagacity in a *goose*, I begged the party to suffer the poor bird to escape.

The crossing of the Canada Goose with the common domestic species has proved as advantageous as that of the wild with the tame Turkey, the cross breed being much larger than the original one, more easily raised, and more speedily fattened. This process is at present carried on to a considerable extent in our Western and Eastern States, where the hybrids are regularly offered for sale during autumn and winter, and where they bring a higher price than either of the species from which they are derived.

The Canada Goose makes its first appearance in the western country, as well as along our Atlantic coast, from the middle of September to that of October, arriving in flocks composed of a few families. The young birds procured at this early season soon get into good order, become tender and juicy, and therefore afford excellent eating. If a sportsman is expert and manages to shoot the old birds first, he is pretty sure to capture the less wily young ones afterwards, as they will be very apt to return to the same feeding places to which their parents had led them at their first arrival. To await their coming to a pond where they are known to feed is generally effectual, but to me this mode of proceeding never afforded much pleasure, more especially because the appearance of any other bird which I wished to obtain would at once induce me to go after it, and thus frighten the game, so that I rarely procured any on such occasions. But yet, as I have witnessed the killing of many a fine goose, I hope you will suffer me to relate one or two anecdotes connected with the shooting of this kind of game.

Reader, I am well acquainted with one of the best sportsmen now living in the whole of the western country, one possessed of strength, activity, courage, and patience,—qualities of great importance in a gunner. I have frequently seen him mount a capital horse of speed and bottom at midnight, when the mercury in the thermometer was about the freezing point, and the ground was covered with snow and ice, the latter of which so encased the trees that you might imagine them converted into glass. Well, off he goes at a round gallop, his steed rough shod, but nobody knows whither, save myself, who am always by his side. He has a wallet containing our breakfast, and abundance of ammunition, together with such implements as are necessary on occasions like the present. The night is pitch-dark, and dismal enough; but who cares! *He* knows the woods as well as any Kentucky hunter, and in this respect I am not much behind him. A long interval has passed, and now the first glimpse of day appears in the east. We know quite well where we are, and that we have travelled just twenty miles. The Barred Owl alone interrupts the melancholy silence of the hour. Our horses we secure, and on foot we move cautiously towards a “long pond,” the feeding-place of several flocks of geese, none of which have yet arrived, although the whole surface of open water is covered with Mallards, Widgeons, Pintail Ducks, Blue-winged and Green-winged Teals. My friend’s gun, like mine, is a long and trusty one, and the opportunity is too tempting. On all fours we cautiously creep to the very edge of the pond; we now raise ourselves on our knees, level our pieces, and let fly. The woods resound with repeated echoes, the air is filled with Ducks of all sorts, our dogs dash into the half frozen water, and in a few minutes a small heap of game lies at our feet. Now, we retire, separate, and betake ourselves to different sides of the pond. If I may judge of my companion’s fingers by the state of my own, I may feel certain that it would be difficult for him to fasten a button. There we are shivering, with contracted feet and chattering teeth; but the geese are coming, and their well known cry, *hawk, hawk, awhawk, awhawk*, resounds through the air. They wheel and wheel for a while, but at length gracefully alight on the water, and now they play and wash themselves, and begin to look about for food. There must be at least twenty of them. Twenty more soon arrive, and in less than half an hour we have before us a flock of a hundred individuals. My experienced friend has put a snow-white shirt over his apparel, and although I am greatly intent on observing his motions, I

see that it is impossible even for the keen eye of the sentinel goose to follow them. Bang, bang, quoth his long gun, and the birds in dismay instantly start, and fly towards the spot where I am. When they approach I spring up on my feet, the geese shuffle, and instantaneously rise upright; I touch my triggers singly, and broken-winged and dead two birds come heavily to the ground at my feet. Oh that we had more guns! But the business at this pond has been transacted. We collect our game, return to our horses, fasten the necks of the geese and ducks together, and throwing them across our saddles, proceed towards another pond. In this manner we continue to shoot until the number of geese obtained would seem to you so very large that I shall not specify it.

At another time my friend proceeds alone to the Falls of the Ohio, and, as usual, reaches the margins of the stream long before day. His well-trained steed plunges into the whirls of the rapid current, and, with some difficulty, carries his bold rider to an island, where he lands drenched and cold. The horse knows what he has to do as well as his master, and while the former ranges about and nips the frozen herbage, the latter carefully approaches a well-known pile of drifted wood, and conceals himself in it. His famous dog Nep is close at his heels. Now the dull grey dawn gives him a dim view of the geese; he fires, several fall on the spot, and one severely wounded rises and alights in the Indian Chute. Neptune dashes after it, but as the current is powerful, the gunner whistles to his horse, who, with pricked ears, gallops up. He instantly vaults into the saddle, and now see them plunge into the treacherous stream. The wounded game is overtaken, the dog is dragged along, and at length on the Indiana shore the horse and his rider have effected a landing. Any other man than he of whose exploits I am the faithful recorder, would have perished long ago. But it is not half so much for the sake of the plunder that he undergoes all this labour and danger, as for the gratification it affords his kind heart to distribute the game among his numerous friends in Louisville.

On our eastern shores matters are differently managed. The gunners there shoot geese with the prospect of pecuniary gain, and go to work in another way. Some attract them with wooden geese, others with actual birds; they lie in ambush for many hours at a time, and destroy an immense number of them, by using extremely long guns; but as there is little sport in this sort of shooting, I shall say no more about it. Here the Canada Goose feeds much on a species of long slender grass, the *Zos-*

tera marina, along with marine insects, crustacea, and small shell-fish, all of which have a tendency to destroy the agreeable flavour which their flesh has when their food consists of fresh-water plants, corn, and grass. They spend much of their time at some distance from the shores, become more shy, diminish in bulk, and are much inferior as food to those which visit the interior of the country. None of these, however, are at all to be compared with the goslings bred in the inland districts, and procured in September, when, in my opinion, they far surpass the renowned Canvass-backed Duck.

A curious mode of shooting the Canada Goose I have practised with much success. I have sunk in the sand of the bars to which these birds resort at night, a tight hogshead, to within an inch of its upper edges, and placing myself within it at the approach of evening, have drawn over me a quantity of brushwood, placing my gun on the sand, and covering it in like manner with twigs and leaves. The birds would sometimes alight very near me, and in this concealment I have killed several at a shot; but the stratagem answers for only a few nights in the season. During severe winters these birds are able to keep certain portions of the deepest parts of a pond quite open and free from ice, by their continued movements in the water; at all events, such open spaces occasionally occur in ponds and lakes, and are resorted to by the geese, among which great havoc is made.

It is alleged in the State of Maine that a distinct species of Canada Goose resides there, which is said to be much smaller than the one now under your notice, and is described as resembling it in all other particulars. Like the true Canada Goose, it builds a large nest, which it lines with its own down. Sometimes it is placed on the sea-shore, at other times by the margin of a fresh-water lake or pond. That species is distinguished there by the name of *Flight Goose*, and is said to be entirely migratory, whereas the Canada Goose is resident. But, notwithstanding all my exertions, I did not succeed in procuring so much as a feather of this alleged species.

While we were at Newfoundland, on our return from Labrador, on the 15th August 1833, small flocks of the Canada Goose were already observed flying southward. In that country their appearance is hailed with delight, and great numbers of them are shot. They breed rather abundantly by the lakes of the interior of that interesting country. In the harbour of Great Macatina in Labrador, I saw a large pile of young

Canada Geese, that had been procured a few days before, and were already salted for winter use. The pile consisted of several hundred individuals, all of which had been killed before they were able to fly. I was told there that this species fed much on the leaves of the dwarf firs, and, on examining their gizzards, found the statement to be correct.

The young dive very expertly, soon after their reaching the water, at the least appearance of danger. In the Southern and Western States, the enemies of the Canada Goose are, by water, the Alligator, the Garfish, and the Turtle; and on land, the Cougar, the Lynx, and the Racoon. While in the air, they are liable to be attacked by the White-headed Eagle. It is a very hardy bird, and individuals have been kept in a state of captivity or domestication for upwards of forty years. Every portion of it is useful to man, for besides the value of the flesh as an article of food, the feathers, the quills, and the fat, are held in request. The eggs also afford very good eating.

ANAS CANADENSIS, Linn. Syst. Nat. vol. i. p. 198.—Lath. Ind. Ornith. vol. ii. p. 838.

ANSER CANADENSIS, Ch. Bonaparte, Synopsis of Birds of the United States, p. 377.

CANADA GOOSE, *ANAS CANADENSIS*, Wils. Amer. Ornith. vol. viii. p. 52. pl. 67. fig. 4.

ANSER CANADENSIS, CANADA GOOSE, Swains. and Richards. Fauna Bor. Amer. p. 468.

CANADA GOOSE, Nuttall, Manual, vol. ii. p. 349.

Adult Male. Plate CCI. Fig. 1.

Bill shorter than the head, rather higher than broad at the base, somewhat conical, depressed towards the end, rounded at the tip. Upper mandible with the dorsal line sloping, the ridge broad and flattened, the sides sloping, the edges soft and obtuse, the oblique marginal lamellæ short, transverse, about thirty on each side; the unguis obovate, convex, denticulate on the inner edge. Nasal groove oblong, parallel to the ridge, filled by the soft membrane of the bill; nostrils medial, lateral, longitudinal, narrow-elliptical, open, pervious. Lower mandible straight, with the angle very long, narrow, and rounded, the edges soft and obtuse, with about thirty oblique lamellæ on a perpendicular plane.

Head small, oblong, compressed. Neck long and slender. Body full, slightly depressed. Feet short, stout, placed behind the centre of the body; legs bare a little above the tibio-tarsal joint; tarsus short, a little compressed, covered all round with angular reticulated scales, which are smaller behind; hind toe very small, with a narrow membrane; third toe longest, fourth a little shorter, but longer than second; all the

toes reticulated above at the base, but with narrow transverse scutella towards the end; the three anterior connected by a reticulated membrane, the outer with a thick margin, the inner with the margin extended into a two-lobed web; claws small, arched, rather compressed, except that of the middle toe, which is bent obliquely outwards and depressed, with a curved edge. Wings of moderate length, with an obtuse protuberance at the flexure.

Plumage close, rather short, compact above, blended on the neck and lower parts of the body. The feathers of the head and neck very narrow, of the back very broad and abrupt, of the breast and belly broadly rounded. Wings, when closed, extending to about an inch from the end of the tail, acute; primaries very strong, curved, the second longest, the third slightly shorter, the first almost as long as the third, the rest rapidly graduated; secondaries long, rather narrow, rounded. Tail very short, rounded, of eighteen stiff, rounded, but acuminate, feathers.

Bill, feet, and claws black. Iris chestnut-brown. Head and two upper thirds of the neck glossy black; forehead, cheeks, and chin, tinged with brown; lower eyelid white; a broad band of the same across the throat to behind the eyes; rump and tail-feathers also black. The general colour of the rest of the upper parts is greyish-brown, the wing-coverts shaded into ash-grey; all the feathers terminally edged with very pale brown; the lower part of the neck passing into greyish-white, which is the general colour of the lower parts, with the exception of the abdomen, which is pure white, the sides, which are pale brownish-grey, the feathers tipped with white, and the lower wing-coverts, which are also pale brownish-grey. The margins of the rump, and the upper tail-coverts, pure white.

In very old males, I have found the breast of a fine pale buff.

Length to end of tail 43 inches, extent of wings 65; bill along the ridge $2\frac{1}{2}$, in depth at the base $1\frac{1}{2}$, in breadth 1; tarsus $3\frac{1}{4}$; middle toe and claw $4\frac{1}{2}$; wing from flexure 20; tail $7\frac{1}{2}$. Weight 7 lb.

Adult Female. Plate CCI. Fig. 2.

The Female is somewhat less than the male, but similar in colouring, although the tints are duller. The white of the throat is tinged with brown; the lower parts are always more grey, and the black of the head, neck, rump, and tail, is shaded with brown.

Length 41 inches. Weight $5\frac{1}{4}$ lb.

THE RED-THROATED DIVER.

COLYMBUS SEPTENTRIONALIS, LINN.

PLATE CCII. MALE IN SUMMER, YOUNG MALE IN WINTER, FEMALE, AND YOUNG UNFLEDGED.

WHILST the icicles are yet hanging from the rocks of our eastern shores, and the snows are gradually giving way under the influence of the April rains, the Bluebird is heard to sound the first notes of his love-song, and the Red-throated Diver is seen to commence his flight. Already paired, the male and female, side by side, move swiftly through the air, steering their course, at a great height, towards some far distant region of the dreary north. Pair after pair advance at intervals during the whole day, and perhaps continue their journey all night. Their long necks are extended, their feet stretched out rudder-like beyond the short tail, and onwards they speed, beating the air with great regularity. Now they traverse a great arm of the sea, now cross a peninsula; but let what may intervene, their undeviating course holds straight forwards, as the needle points to its pole. High as they are, you can perceive the brilliant white of their lower parts. Onward they speed in silence, and as I stand gazing after them, they have already disappeared from my view.

The middle of May has arrived; our woods are once more filled with the melodies of numberless warblers, and the Divers have ceased to be seen on our eastern coasts. To study their habits at this season, we must follow them to the islands in the mouth of the broad St Lawrence, or to the granitic rocks of Labrador. The voyage cannot be performed without great expense, and may be attended with danger, but enthusiasm urges me on, and now my bark skims over the blue waters. At length arrived on the rocky shores, I prepare to visit the interior of that rude and moss-clad region. Thousands of little lakes are seen, on which are numberless islets richly clad with grass and sedge, the whole of which seems as if it had grown in a day, so tender are the fresh blades, and so pure their light green tint. High over these waters, the produce of the melted snows, the Red-throated Diver is seen gambolling by the side of his mate. The males emit their love-notes, and, with necks gracefully curved downwards, speed by the females, saluting them with mellow tones as they pass. In broad circles they wheel their giddy flight, and now,

with fantastic glidings and curves, they dive towards the spot of their choice. Alighted on the water, how gracefully they swim, how sportively they beat it with their strong pinions, how quickly they plunge and rise again, and how joyously do they manifest to each other the depth and intensity of their affection ! Now with erected neck and body deeply immersed they swim side by side. Reynard they perceive cunningly advancing at a distance ; but they are too vigilant for him, and down like a flash they go, nor rise again until far beyond his reach. Methinks I see them curiously concealed among the rank weeds under the bank of their own islet, their bills alone raised above the water, and there will they remain for an hour, rather than shew themselves to their insidious enemy, who, disappointed, leaves them to pursue their avocations.

The Red-throated Diver is found, in tolerable abundance, on the sea-coast of the United States during autumn, winter, and early spring, from Maryland to the extremities of Maine. The younger the birds, the farther south do they proceed to spend the winter, and it is rare to see an old bird, of either sex, at any season to the south of the Bay of Boston. Farther eastward they become more common, and they may be said to be plentiful towards the entrance of the Bay of Fundy, in the vicinity of which a few remain and breed. I found some in December, January, and February at Boston, where I procured males, females, and young birds. The old had the red patch on the throat rather darker than in the breeding season ; the delicate grey and white lines on the neck were as pure as I observed them to be during summer in Labrador ; and I have since been convinced that birds of this family undergo very little if any change of colouring after they have once acquired their perfect plumage, the Loon and the Black-throated Diver being included in this remark ; while, on the contrary, all the Grebes with which I am acquainted, lose the beauty of their plumage as soon as the breeding season is over. This remarkable difference between the Divers and the Grebes would of itself be sufficient to separate the two genera, were there not also other distinctions. The Divers, moreover, live on the sea during the greater part of the year, and resort to ponds, lakes, or the borders of rivers to breed ; whilst the Grebes spend most of their time on inland lakes, marshes, and streams. Immediately after the breeding season, as soon as the young are able to fly, the families of Divers make their way to the arms and inlets of the sea, rarely entering the fresh waters until the following spring.

The Red-throated Diver is at all times an extremely shy and vigilant bird, ever on the alert to elude its numerous enemies. The sight of man seems invariably to alarm it, even in the wildest countries in which it breeds. I have often observed that, while yet several hundred yards from them, they marked my approach with great watchfulness. First they would dive and make their way to the farther end of the pond, after which, with outstretched necks, they would remain silent and motionless, until I approached within about a hundred yards, when, instead of diving again, as the Loon always does, they at once, with a single spring, rose from the water, and ere I had proceeded a few yards, they were already eight or ten feet above it. If I crept towards them through the tangled mosses or shrubs, they would swim about with their heads elevated, as if determined to make their escape on the appearance of imminent danger. In many instances, my party observed this species in small flocks of five or six in the same lake, when it happened to be of considerable extent; and as this was during the height of the breeding season, we concluded that these associated birds were barren, as I ascertained that males and females, when once paired, remain together until their young are able to fly, when they part company, until the next pairing season, which is about the first of March.

This species begins to breed in Labrador in the beginning of June, and about a fortnight earlier along the Bay of Fundy. The numerous nests which our party found in the former district were all placed on small sequestered islands in the middle of lakes or large ponds of fresh water, rarely more than one mile distant from the sea-shore. These nests consisted merely of a few blades of rank grasses loosely put together, and were quite flat, without any down to warm or conceal the eggs *at any period* of incubation. The nest was placed within a few feet of the water, and well-beaten tracks, such as are made by otters, led to it. Whenever the birds went to this spot they walked nearly erect in an awkward manner, but when they sat in their nest they laid themselves flat on the eggs, in the manner of a Goose or Duck. In no instance did they alight on the islands, but always on the water, at some distance, when, after examining all around them for a while, they crawled silently out, and moved to the spot which contained their treasure.

Having been told that the Red-throated Diver covers its eggs with down in the manner of many ducks, I was surprised to find the assertion incorrect, and having killed several individuals during the period of in-

cubation and immediately after it, I carefully examined them, and found all of them fully covered with down, they being, in this respect, quite different from the Eider Duck, the Velvet Duck, the Harlequin Duck, and other species of that family, nay even from the Black Guillemot, of which I shall speak in the present volume. Probably it is on account of those birds breeding much farther north, that, according to Dr RICHARDSON, they there line their nest with down. We also found the *Colymbus glacialis* incubating without any in its nest. The idea generally entertained that this species never lays more than two eggs I found equally incorrect, for of five nests, two contained two eggs each, two had three each, and the fifth had three young birds. The eggs measure 3 inches in length by $1\frac{1}{4}$ in breadth, and are of an elongated elliptical form, nearly equally rounded at both ends; they are of a deep olive-brown colour, irregularly marked with spots of a darker dull brown. The male incubates as well as the female, and both are extremely solicitous about the safety of their young, which betake themselves to the water on the day succeeding that of their escape from the egg, and are from the first most expert swimmers and divers. Two of the young were shot by Captain EMERY, having been easily approached in the absence of their parents, at which he had shot without success, they not having yet learned from experience the danger of the proximity of man. They dived beautifully, and swam with great buoyancy, inclining their necks forwards, in the manner of the old birds. This was on the 5th July 1833. On the 15th of the same month, THOMAS LINCOLN and my son JOHN WOODHOUSE, saw several young ones, which, although quite small, were equally expert at diving. When swimming by the side of their mother they floated high, with the neck quite erect, while the old bird swam deep, with her neck inclined forward. When the little ones dived, they moved under the water like so many turtles, and at last were caught on the bottom of the pond, which was small and shallow, by placing the gun-rods upon them. So averse from moving are the old birds when sitting on their eggs, that they will not bestir themselves until in imminent danger, on which, however, they scramble to the water, dive, and, on emerging, immediately rise on wing without uttering any note. The male only is noisy on such occasions, and more especially when it returns from afar to its mate, when it evinces its satisfaction by calling aloud, as it repeatedly passes and repasses over the spot, and then alights in a pompous manner on the water.

The sexes differ materially in size, the male birds being much larger

than the females, and weighing at an average fully a pound more. These birds are extremely tenacious of life. One which my son shot on the wing fell, dived instantly, and swam to a considerable distance under water, but returned to the surface, back downwards, and quite dead.

The notes of the Red-throated Diver are harsh and rather loud; they resemble the syllables *cac, cac, cac, carah, carah*, enounced in rapid succession. In some instances the young men of my party found that the most successful method of approaching these birds whilst on the water, was to run as fast as possible towards them and shout loudly, for on such occasions the birds dived instead of flying at once, and on emerging again, afforded them much better chances as they took to wing. At certain times, when approached while they have young, they utter a soft plaintive note, which evidently conveys to their offspring their wish that they should remain quiet in their hiding-places.

The Red-throated Diver does not acquire the full beauty of its plumage until its fourth year. The young are at first covered with thick hairy down, of a blackish colour, inclining to brown. Before they are fully able to fly, this is changed into a dull grey on the upper parts, thickly sprinkled with white dots on the extremity of each feather, the lower parts being of a sullied white. During the second year these tints are firmer, there are fewer spots above, and the texture of the lower parts is more silky. In the third, both sexes assume the fine grey of the hind-neck, with its longitudinal white stripes, and here and there a few spots of red on the lower part of the throat. The next spring their plumage is perfect.

I have never observed any of these birds on our inland lakes or rivers. In the neighbourhood of Boston, and along the Bay of Fundy, they are best known by the names of "Scape-grace" and "Cape-racer." By the 9th of August the young birds had left the fresh-water lakes and ponds for the bays on the coast, and we were informed by the settlers, both in Newfoundland and Labrador, that, by the last days of September, none were to be found in those countries.

The dislike which this species shews to fresh-water after the breeding-season is such, that they are rarely seen in the upper part of large bays, but prefer for their winter residence the shores of sea-islands and barren rocks. Thus, at that season, they are met with about the outer islands of the Bay of Fundy, and those along our eastern coast.

While in fresh water, the Red-throated Diver feeds principally on

small fish, shrimps, leeches, snails, and aquatic insects. The masses of feather-like substances often found in the stomachs of Grebes, *I have never met with in this species. Its flesh is oily, tough, dark-coloured, and disagreeable to the taste, although I saw some Mountain Indians feeding upon it at Labrador with apparent pleasure.

COLYMBUS SEPTENTRIONALIS, *Linn. Syst. Nat.* vol. i. p. 220.—*Lath. Ind. Ornith.* vol. ii. p. 801.—*Ch. Bonap. Synops. of Birds of the United States*, p. 421.

RED-THROATED DIVER, *COLYMBUS SEPTENTRIONALIS*, *Richards and Swains. Fauna Bor. Amer.* part ii. p. 476.—*Nuttall, Manual*, vol. ii. p. 519.

Adult Male in summer. Plate CCII. Fig. 1.

Bill as long as the head, slender but strong, straight, rather compressed, tapering to a point. Upper mandible with the dorsal line almost straight, the ridge convex, as are the sides, the edges sharp and involute; nasal groove basal, short; nostrils basal, lateral, direct, oblong, pervious. Lower mandible with the angle extremely narrow and extending beyond the middle, the dorsal line straight and sloping upwards to the point, the ridge convex, but narrower than that of the upper mandible, the edges sharp and involute; the point of both mandibles rather sharp.

Head of moderate size, oblong, narrowed before. Neck rather long and slender. Eyes rather small. Body elongated, somewhat depressed. Wings small. Feet short, rather large, placed very far back; tibia almost entirely concealed; tarsus short, exceedingly compressed, sharp-edged before and behind, covered all over with reticulated angular scales; hind toe extremely small, connected with the second by a very small membrane; the anterior toes united by reticulated membranes, the fourth longest, the third a little shorter, the second considerably shorter than the third; all covered anteriorly with very narrow transverse scutella, the second toe with a free two-lobed membrane; claws very small, depressed, rounded.

Plumage short and dense; of the head and neck very short, blended; of the lower parts blended, short, and with a silky gloss; of the upper slightly glossed and somewhat compact; the feathers in general oblong and rounded. Wings proportionally very small and narrow, curved; primaries strong, tapering, first longest, second almost as long, the rest rapidly graduated; secondaries broad, rounded. Tail extremely short, rounded, of twenty rounded feathers.

Bill bluish-black. Iris deep bright red. Feet brownish-black, the anterior edge of the tarsus, the upper surface of the toes, the claws, and part of the webs, pale livid flesh-colour. Fore part and sides of the head, throat, and sides of the neck, of a fine bluish-grey; fore part of the neck rich brownish-red; hind part of the head and hind neck longitudinally streaked with greenish-black and pure white, each feather black in the middle, with the sides white, the colours disposed in lines. The upper surface brownish-black, tinged with green, more or less mottled with white according to age, excepting the primary quills and the tail-feathers, the latter of which are merely paler at the end. The whole under surface pure white, excepting the feathers on the sides under the wings, some of those about the vent, and the lower tail-coverts, which are greyish-brown, with white margins and tips.

Length to end of tail $25\frac{1}{2}$ inches, to end of claws 27, extent of wings $43\frac{1}{4}$; bill $2\frac{1}{8}$, gape $3\frac{3}{8}$; tarsus 3, fourth toe and claw $3\frac{3}{4}$; wing from flexure $11\frac{1}{2}$, tail 3. Weight 4 lb.

Adult Female in summer. Plate CCII. Fig. 3.

The female is precisely similar to the male in form and colouring, but is considerably smaller.

Length to end of tail 25 inches, to end of claws $28\frac{1}{8}$; extent of wings 43. Weight 3 lb.

Male in winter immature. Plate CCII. Fig. 2.

In this state the principal differences are the following:—The fore part of the neck, instead of being of a uniform rich brownish-red, is merely mottled with that colour; all the feathers of the upper surface have each two white spots towards the end; the tail-feathers are edged and terminated with white; the colouring in general is somewhat less pure and deep, and the bill is of a much paler tint.

Young bird unfledged. Plate CCII. Fig. 4.

The young are at first covered with a dense elastic down of a greyish black colour, tinged with brown. The bill is bluish-black, its basal edges yellow; the iris reddish-brown.

THE GREAT RED-BREASTED RAIL, OR FRESH-WATER MARSH-HEN.

RALLUS ELEGANS.

PLATE CCIII. MALE AND YOUNG.

No doubt exists in my mind that WILSON considered this beautiful bird as merely the adult of *Rallus crepitans*, the manners of which he described, as studied at Great Egg Harbour in New Jersey, while he gave in his works the figure and colouring of the present species. My friend THOMAS NUTTALL has done the same, without, I apprehend, having seen the two birds together. Always unwilling to find faults in so ardent a student of nature as WILSON, I felt almost mortified when, after having, in the company of my worthy and learned friend, the Reverend JOHN BACHMAN, carefully examined the habits of both species, which, in form and general appearance, are closely allied, I discovered the error which he had in this instance committed. Independently of the great difference as to size between the two species, there are circumstances connected with their habits which mark them as distinct. The *Rallus elegans* is altogether a fresh-water bird, while the *R. crepitans* never removes from the salt-water marshes, that are met with along our eastern Atlantic coasts, from the Jerseys to the Gulf of Mexico. Nay, the present species is found at considerable distances inland, where it breeds and spends the whole year; whereas the latter never goes farther from its maritime haunts than the borders of the salt-marshes, and this merely on certain occasions, when driven thither by the high risings of tides. The Fresh-water Marsh-hen, besides, is confined to the Southern States, a few stragglers only having been observed farther eastward than the State of Pennsylvania, and these only in fresh-water meadows.

So long ago as the year 1810, on the 29th May, I caught one of these birds, a female, at Henderson, in the State of Kentucky, when I made the following memorandum respecting it:—"It is an excessively shy bird, runs with great celerity, and when caught, cries like a common fowl." It weighed eleven ounces avoirdupois; its total length was $20\frac{1}{2}$ inches, and its alar extent 22.

This species constantly resides in the fresh-water marshes and ponds

in the interior of South Carolina, Georgia, the Floridas, and Louisiana, from which a few migrate, and probably breed as far to the eastward as the wet meadows of the Delaware and Schuylkil rivers, in the vicinity of which I killed one female in New Jersey, a few miles from Camden, in July 1832, in company with my friends EDWARD HARRIS and Mr OGDEN, of that city. On inquiring of numerous hunters, I was told by several of them that they now and then obtained a few of these birds, which they considered as very rare, and knew only by the name of "King Rails." On recently examining the museums of our eastern cities my friend JOHN BACHMAN saw only one specimen; and Mr WILLIAM COOPER of New York assured him that he had never seen any other individuals than those sent to him from Charleston. Mr BACHMAN was present at the killing of a specimen near Philadelphia, which was *considered* as a very old individual of the *Rallus crepitans*. In Louisiana, the Creoles know this bird by the name of *Grand Râle de Prairie*.

As the Fresh-water Marsh-Hen is abundant in South Carolina, I shall attempt to describe its habits as observed in that State, both by myself and by my friend JOHN BACHMAN, of whose notes, delivered to me for the purpose, I shall make free use. "Although not nearly so numerous as the other species, they are not rare in that country, in certain favourable situations. Wherever there are extensive marshes by the sides of sluggish streams, where the bellowings of the alligator are heard at intervals, and the pipings of myriads of frogs fill the air, there is found the Fresh-water Marsh-hen, and there it may be seen gliding swiftly among the tangled rank grasses and aquatic weeds, or standing on the broad leaves of the yellow Cyamus and fragrant Water-lily, or forcing its way through the dense foliage of Pontederiæ and Sagittariæ. There, during the sickly season, it remains secure from the search of man, and there, on some hillock or little island of the marsh, it builds its nest. In such places I have found so many as twenty pairs breeding within a space having a diameter of thirty yards. The nests were placed *on the ground*, and raised to the height of six or eight inches by means of withered weeds and grasses. The number of eggs was nine or ten. About the middle of March I found a few nests containing two or three eggs each; but, in my opinion, the greater number of these birds commence breeding about the middle of April. They appear to repair their nests from time to time, and to return to them several years in succession."

The young, which are at first black, leave the nest as soon as they

burst the shell, and follow their mother, who leads them along the borders of the streams and pools, where they find abundance of food, consisting of grass-seeds, insects, tadpoles, leeches, and small crayfish. At this early period, when running among the grass, which they do with great activity, they may easily be mistaken for meadow-mice. My friend BACHMAN, who had several times attempted to raise these birds, with the view of domesticating them, did not succeed, principally, he thinks, on account of the difficulty of procuring enough of their accustomed food. They all died in a few days, although the greatest attention was paid to them.

When grown they feed on a variety of substances, and it has appeared to me that they eat a much greater proportion of seeds and other vegetable matters than the Salt-water Marsh-Hens. It is true, however, that, in the gizzard of the latter we find portions of the *Spartina glabra*; but when that kind of food is not to be procured, which is the case during three-fourths of the year, they feed principally on "Fiddlers," small fish, and mollusca. In the gizzard of the present species, besides the food already mentioned, I have always found a much greater quantity of the seeds of such grasses as grow in the places frequented by them. On one occasion I found the gizzard crammed with seeds of the cane (*Arundo tecta*); and that of another contained a large quantity of the seed of the common oat, which had evidently been picked up on a newly sown field adjoining to the marsh. In autumn I have killed this species in corn-fields, in the company of JOHN BACHMAN, PAUL H. LEES, Esq. and others. These birds are rarely shot by common gunners, on account of the difficulty of raising them, and because they generally confine themselves to places so swampy and covered with briars, smilaxes, and rough weeds, that they are scarcely accessible. But although they are thus safe from man, they are not without numerous enemies.

My friend BACHMAN once killed a large Moccasin snake, on opening which he found an old bird of this species, that had evidently been swallowed but a short time before. Its feathers are frequently found lying on the banks of rice-fields, ponds, and lagoons, in places where the tracks of the minx plainly disclose the plunderer. The Barred Owl and the Great Horned Owl also occasionally succeed in capturing them in the dusk. "On one occasion," says my friend BACHMAN, in a note addressed to me, "while placed on a stand for deer, I saw a wild cat creeping through a marsh that was near to me, evidently following by stealthy steps some-

thing that he was desirous of making his prey. Presently he made a sudden pounce into a bunch of grass, when I immediately heard the piercing cries of the Marsh-Hen, and shortly after came passing by me the successful murderer with the bird in his mouth."

"In seasons of great drought, when the marshes which are their favourite haunts become dry, these birds have been known entirely to disappear from the neighbourhood, and not to return until after heavy rains, having in the mean time, no doubt, retired to the shores of the larger and deeper ponds of the swamps of the interior."

The young of this species acquire the redness of their plumage during the first summer, and increase in size and beauty for several years, without experiencing any change in their colouring after the spring following that of their birth. The sexes are scarcely distinguishable otherwise than by the difference of size, the males being considerably larger than the females. I am not aware that this species raises more than one brood in the season, although, when its eggs have been destroyed, it may lay a second time.

The flight of this Rail resembles that of the salt-water kind, but is considerably stronger and more protracted. When suddenly flushed, they rise and go off with a chuck, their legs dangling beneath, and generally proceed in a straight line for some distance, after which they drop among the thickest grass, and run off with surprising speed. In several instances they have been known to stand before a careful pointer. They are less apt to take to the water than the *Rallus crepitans*, and are by no means so expert at diving. Their number does not appear to be diminished in winter by any migratory movements. Their cries, which do not differ much from those of the other species, are less frequently repeated after the breeding season.

Few birds afford better food than this species: during autumn, when, feeding chiefly on grass seeds, they are juicy and tender; in spring, however, they are less delicate. Their superiority in size over all other birds of the genus that occur in the United States, renders them valuable game to the knowing sportsman and epicure. Their eggs also are excellent as food, being much preferable to those of the common fowl.

I regret that I am obliged to conclude this account, without being able to describe the eggs, which, although well known to my friend JOHN BACHMAN, have not yet come under my inspection, but which I trust I shall have an opportunity of figuring in the concluding plates of my work.

GREAT RED-BREASTED RAIL, OR FRESH-WATER MARSH HEN.

RALLUS ELEGANS.

Adult Male. Plate CCIII. Fig. 1.

Bill much longer than the head, slender, compressed, very slightly curved, deep at the base. Upper mandible with the dorsal line almost straight until towards the end, where it is slightly curved, the ridge flattish at the base, and extending a little on the forehead, convex towards the end; a deep groove runs on either side parallel to the ridge for two-thirds of the whole length; the edges inflected, with a very slight notch close to the tip. Nostrils lateral, linear, direct, open and pervious. Lower mandible with the angle very long, extremely narrow, the sides erect, slightly convex, the edges inflected, the tip narrowed.

Head small, oblong, much compressed. Neck long and slender. Body slender, much compressed. Feet long; tibia bare a considerable way above the joint; tarsus rather long, strong, compressed, anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated; hind toe very small and slender, middle toe longest, fourth considerably shorter, and but little longer than the second; toes free, scutellate above, compressed, granulate beneath; claws of moderate length, arched, slender, much compressed, acute, flat, and marginate beneath.

Plumage rather stiff, compact and glossed on the upper parts. Feathers of the head and neck short and blended; of the forehead with the shaft enlarged, and extended beyond the tip. Wings very short and broad; alula large; primaries curved, broad, tapering but obtuse, third longest, second scarcely shorter, first and seventh about equal; secondaries weak, broad, rounded. Tail very short, much rounded, of twelve feeble rounded feathers; the upper and lower coverts nearly as long as the tail-feathers.

Lower mandible and edges of upper brownish-yellow; ridge of upper, and tips of both, deep brown. Iris bright red. Feet yellowish-brown, tinged with olive; claws of the same colour. Upper part of head and hind neck dull brown, the bristle-like shafts of the frontal feathers brownish-black; a brownish-orange line from the bill over the eye; a broader band of the same colour from the lower mandible, the intermediate space dusky; chin white. The upper parts in general are streaked with brownish-black and light olive-brown, the two sides of each feather being of the latter colour. Wing-coverts dull chestnut, most of them irregularly tipped with brownish-white. Alula and primaries deep olive-

brown; secondaries and tail-feathers like the back. Sides and fore part of the neck, and greater part of the breast, bright orange-brown; sides and lower wing-coverts undulated with deep brown and greyish-white; tibial feathers pale greyish-brown, faintly barred with darker, as is the hind part of the abdomen, the fore part being uniform pale greyish-brown; lateral lower tail-coverts white, each with a blackish-brown spot near the end; those in the middle barred with black and white.

Length to end of tail 19 inches, to end of claws 26, extent of wings 25; bill $2\frac{5}{8}$; tarsus $2\frac{1}{2}$, middle toe and claw $2\frac{1}{2}$; wing from flexure 7, tail $2\frac{1}{2}$. Weight 1 lb. 9 oz.

Adult Female.

The female, which is smaller, is similar to the male, but has the tints somewhat duller.

Length to end of tail 18 inches, to end of claws $22\frac{1}{2}$, extent of wings 24. Weight 1 lb. 2 oz.

Young in autumn. Plate CCIII. Fig. 2.

The young in autumn and fully fledged resemble the female, but are duller in their colours.

THE CLAPPER RAIL, OR SALT-WATER MARSH- HEN.

RALLUS CREPITANS, GMEL.

PLATE CCIV. MALE AND FEMALE.

ALTHOUGH this species is a constant resident, and extremely abundant along the salt marshes and reedy sea islands of South Carolina, Georgia, Florida, Alabama, and Louisiana, to the mouths of the Mississippi, and probably farther south, at all seasons of the year, it leaves these districts in considerable numbers in spring, and extends its movements along the Atlantic shores as far as the Middle States. They confine themselves entirely to the salt-marshes in the immediate vicinity of the Atlantic, the islands and the channels between them and the main shores, but are never seen inland or on fresh waters, unless when, during high tides, they remove to the margins of the main, where, indeed, during heavy gales and high seas, these poor birds are forced to take refuge, in order to escape the destructive fury of the tempest that, notwithstanding their utmost exertions, destroys great numbers of them. On all such occasions the birds appear greatly intimidated and stupified, and as if out of their proper element. Those individuals which leave the south for a season, reach the shores of New Jersey about the middle of April, and return to the southern States about the beginning of October, to spend the winter along with their young, after which period none are to be found in the Middle Districts. Few if any ever go beyond Long Island in the State of New York; at least I have never seen or heard of one farther east. Their migrations take place under night, and in perfect silence; but the moment they arrive at their destination, they announce their presence by a continuation of loud cacklings, meant no doubt as an expression of their joy. Having studied the habits of these interesting birds in the Jerseys, in South Carolina, and in the Floridas, on the maritime borders of all of which they breed, I shall here attempt to describe them.

In these countries, from about the beginning of March to that of April, the salt-marshes resound with the cries of the Clapper Rail, which resemble the syllables *cac, cac, cac, cac, cā, cāhā, cāhā*. The commencement of the cry, which is heard quite as frequently during day as by

night, is extremely loud and rapid, its termination lower and protracted. At the report of a gun, when thousands of these birds instantaneously burst forth with their cries, you may imagine what an uproar they make. This bird seems to possess the power of ventriloquism, for, when several hundred yards off, its voice often seems to be issuing from the grass around you. At this period, the males are very pugnacious, and combats are rife until each has selected a female for the season. The males stand erect and cry aloud the least sound they hear, guard their mates, and continue faithfully to protect them until the young make their appearance. These come more under the care of the mother, who leads them about until they have attained a considerable size, and are able to shift for themselves. The nest is large, constructed of marsh plants, and fastened to the stems in the midst of the thickest tufts, above high-water mark. The materials of which it is formed are so well interlaced with the plants around them, as to prevent their being washed away by extraordinarily high tides, which, however, sometimes carry off and destroy the eggs, as well as many of the sitting birds, whose attachment to them is so great, that they are now and then drowned while endeavouring to keep them safe. The nest is very deep, so that the eggs seem placed in the bottom of a bowl or funnel. They are from eight to fifteen in number, measure an inch and a half in length by one and an eighth in breadth, and have a pale buff colour, sparingly sprinkled with light umber and purplish spots. The period of incubation is fourteen days. When undisturbed, this species lays only one set of eggs in the season; but as the eggs are in request as a delicious article of food, they are gathered in great numbers, and I myself have collected so many as seventy-two dozens in the course of a day. The nest is generally open at top, and then is very easily discovered, although sometimes the reeds are so arranged about them as to conceal them from the view. When the birds are sitting, they suffer you to approach within a few feet; but, as if aware of your intention, they glide away in silence to some distance, and remain crouched among the grass until you have retired. When, on returning, the poor bird finds that her treasure has been stolen, she immediately proclaims her grief aloud, and in this is joined by her faithful mate. In a few days, however, more eggs are deposited, although, I believe, never in the same nest. This species may be called gregarious, yet the nests are seldom nearer to each other than five or ten yards. They are placed in the thickest and most elevated tufts of grass, principally near the edges

of the many lagoons that everywhere intersect the sea marshes, so that a man may go from one to another, finding them with ease as he proceeds along the muddy shores. In the Jerseys, it forms almost a regular occupation to collect the eggs of this bird, and there I have seen twenty or more persons gathering them by thousands during the season; in fact, it is not an uncommon occurrence for an egger to carry home a hundred dozens in a day; and when this havock is continued upwards of a month, you may imagine its extent. The abundance of the birds themselves is almost beyond belief; but if you suppose a series of salt marshes twenty miles in length, and a mile in breadth, while at every eight or ten steps one or two birds may be met with, you may calculate their probable number.

During ebb, the Clapper Rail advances towards the edge of the waters as they recede, and searches, either among the grasses, or along the deep furrows made by the ebb and flow of the tides, for its food, which consists principally of small crabs, a species of salt-water snail attached to the rushes, the fry of fishes, aquatic insects, and plants. When the tide flows, they gradually return, and at high-water they resort to the banks, where they remain concealed until the waters begin to retreat. This species is by no means exclusively nocturnal, for it moves about in search of food during the whole of the day, in this respect resembling the Gallinules. Their courage is now and then brought to the test by the sudden approach of some of their winged enemies, such as a Hawk or an Owl, especially the Marsh Hawk, which is often attacked by them while sailing low over the grass in which they are commonly concealed. On such occasions, the Rail rises a few yards in the air, strikes at the marauder with bill and claws, screaming aloud all the while, and dives again among the grass, to the astonishment of the bird of prey, which usually moves off at full speed. They are not so fortunate in their encounters with such hawks as pounce from on high on their prey, such as the Red-tailed and Red-shouldered Hawks, against which they have no chance of defending themselves. Minxes, racoons, and wild cats destroy a great number of them during night, and many are devoured by turtles and venomous fishes; but their worst enemy is man. My friend BACHMAN has shot so many as sixty in the course of four hours, and others have killed double that number in double the time.

The Salt-water Marsh Hen swims with considerable ease, though not swiftly or gracefully. While in this act, it extends its neck forward, and

strikes the water with its feet, as if unwilling to move far at a time, the motion of its neck resembling that of the *Gallinules*. It dives well, remains a considerable time under water, and in this manner dexterously eludes its pursuers, although it certainly does not possess the power of holding fast to the bottom, as some persons have alleged. When hard pressed, it often sinks just below the surface, keeping the bill above in order to breathe, and in this position, if not detected, remains for a considerable time. If perceived and approached, it instantly dives, and uses its wings to accelerate its progress, but rises as soon as it comes to a place of safety.

Their movements on the ground, or over the partially submersed or floating beds of weeds, are extremely rapid, and they run swiftly off before a dog, the utmost exertions of which are required to force them on wing. Such an attempt by man would prove utterly futile, unless he were to come upon them unawares. When not pursued, and feeling secure, they walk in a deliberate manner, the body considerably inclined, now and then jerking the tail upwards, although by no means so frequently as *Gallinules* are wont to do. On the least appearance of danger, they lower the head, stretch out the neck, and move off with incomparable speed, always in perfect silence. They have thousands of paths among the rank herbage, crossing each other so often that they can very easily escape pursuit; and besides, they have a power of compressing their body to such a degree, as frequently to force a passage between two stems so close, that one could hardly believe it possible for them to squeeze themselves through. When put up, they fly slowly and generally straight before you, with their legs dangling, so that they are very easily shot by a quick sportsman, as they rarely fly far at a time on such occasions, but prefer pitching down again into the first tuft of rank grass in their way. When on their migrations, however, they pass low and swiftly over the marshes, or the water, stretched to their full extent, and with a constant beat of the wings.

The young, which are at first covered with down of a black colour, obtain their full plumage before the winter arrives, and after this undergo little change of colour, although they increase in size for a year after. In the Eastern States, this species is not held in much estimation as an article of food, perhaps in a great measure on account of the quantity of *Soras* met with there during early autumn, and which are certainly more delicate; but in the Southern States, especially during winter, they are

considered good for the table, and a great number are killed and offered for sale in the markets. Numbers are destroyed by torch light, which so dazzles their eyes, as to enable persons fond of the sport to knock them down with poles or paddles during high tides. It is by day, however, that they are usually shot, and as this kind of sport is exceedingly pleasant, I will attempt to describe it.

About Charleston, in South Carolina, the shooting of Marsh Hens takes place from September to February, a few days in each month during the spring-tides. A light skiff or canoe is procured, the latter being much preferable, and paddled by one or two experienced persons, the sportsman standing in the bow, and his friend, if he has one with him, taking his station in the stern. At an early hour they proceed to the marshes, amid many boats containing parties on the same errand. There is no lack of shooting-grounds, for every creek of salt-water swarms with Marsh Hens. The sportsman who leads has already discharged his barrels, and on either side of his canoe a bird has fallen. As the boat moves swiftly towards them, more are raised, and although he may not be ready, the safety of the bird is in imminent jeopardy, for now from another bark double reports are heard in succession. The tide is advancing apace, the boats merely float along, and the birds, driven from place to place, seek in vain for safety. Here, on a floating mass of tangled weeds, stand a small group side by side. The gunner has marked them, and presently nearly the whole covey is prostrated. Now, onward to that great bunch of tall grass all the boats are seen to steer; shot after shot flies in rapid succession; dead and dying lie all around on the water; the terrified survivors are trying to save their lives by hurried flight; but their efforts are unavailing,—one by one they fall, to rise no more. It is a sorrowful sight, after all: see that poor thing gasping hard in the agonies of death, its legs quivering with convulsive twitches, its bright eyes fading into glazed obscurity. In a few hours, hundreds have ceased to breathe the breath of life; hundreds that erst revelled in the joys of careless existence, but which can never behold their beloved marshes again. The cruel sportsman, covered with mud and mire, drenched to the skin by the splashing of the paddles, his face and hands besmeared with powder, stands amid the wreck which he has made, exultingly surveys his slaughtered heaps, and with joyous feelings returns home with a cargo of game more than enough for a family thrice as numerous as his own. How joyful must be the congratulations of those which have escaped, without

injury to themselves or their relatives ! With what pleasure, perhaps, have some of them observed the gun of one of their murderers, or the powder-flask of another, fall overboard ! How delighted have they been to see a canoe overturned by an awkward movement, and their enemies struggling to reach the shore, or sticking fast in the mud ! Nor have the minx and racoon come off well, for notwithstanding the expertness of the former at diving, and the cunning of the latter, many have been shot, and the boatmen intend to make caps of their fur.

In the Carolinas there are some most expert marksmen, of whom I know two who probably were never surpassed. One of them I have seen shoot fifty Marsh-Hens at fifty successive shots, and the other, I am assured, has killed a hundred without missing one. I have heard or read of a French king, who, on starting a partridge, could take a pinch of snuff, then point his gun, and shoot the bird ; but whether this be true or not I cannot say, although I have witnessed as remarkable a feat, for I have seen a Carolinian, furnished with two guns, shoot at and kill four Marsh-Hens as they flew off at once around him ! On speaking once to a friend of the cruelty of destroying so many of these birds, he answered me as follows:—" It gives variety to life ; it is good exercise, and in all cases affords a capital dinner, besides the pleasure I feel when sending a mess of Marsh-Hens to a friend such as you."

RALLUS CREPITANS, Gmel. Syst. Nat. vol. i. p. 713.—*Lath.* Ind. Ornith. vol. ii. p. 756.

CLAPPER RAIL, *RALLUS CREPITANS*, *Wils.* Amer. Ornith. vol. vii. p. 112, but not the figure, which is that of the preceding species.—*Nuttall*, Manual, vol. II. p. 201.

Adult Male. Plate CCIV. Fig. 1.

Bill much longer than the head, slender, compressed, slightly curved, rather deep at the base. Upper mandible with the dorsal line almost straight until towards the end, where it is slightly curved, the ridge slightly flattened for a short space at the base, and extending a little on the forehead, narrow and convex to the end ; a deep groove runs on either side parallel to the ridge for two-thirds of the whole length ; the edges inflected, with a very slight notch close to the tip. Nostrils lateral, linear, direct, open and pervious. Lower mandible with the angle very long, extremely narrow, the sides erect, slightly convex, the edges inflected, the tip narrowed.

Head small, oblong, much compressed. Neck long and slender. Body slender, much compressed. Feet long; tibia bare a considerable way above the joint; tarsus of moderate length, strong, compressed, and anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated. Hind toe very small and slender, middle toe longest, fourth considerably shorter, and but little longer than the second; toes free, scutellate above, compressed, granulate beneath. Claws of moderate length, arched, slender, much compressed, acute, flat and marginate beneath.

Plumage rather stiff, compact and glossed on the upper parts. Feathers of the head and neck short and blended, of the forehead with the shaft enlarged and extended beyond the tip. Wings very short and broad; alula large; primaries curved, broad, tapering, but obtuse, third longest, second scarcely shorter, first and seventh about equal; secondaries weak, broad, rounded. Tail extremely short, much rounded, of twelve feeble, rounded feathers; the upper and lower coverts nearly as long as the tail-feathers.

Lower mandible and edges of upper yellowish-brown; ridge of upper and tips of both deep brown. Iris pale yellow. Feet pale livid grey, tinged with orange about the tibio-tarsal joint; claws dusky. Upper part of the head and hind neck dull brown, the bristle-like shafts of the frontal feathers brownish-black; a pale brownish-orange line from the bill over the eye; loreal space and sides of the head dull bluish-grey, the two sides of each feather being of the latter colour. Wing-coverts dull olive, tinged with grey, some of them with slight irregular whitish markings; alula and primaries olive-brown; secondaries and tail feathers like the back. Chin yellowish-white, edged on either side with pale yellowish-brown; sides and fore part of the neck bluish-grey, tinged more especially before with dull pale yellowish-brown; the fore part of the breast of the latter colour. Lower wing-coverts, sides, hind part of abdomen, and middle lower tail-coverts undulated with deep greyish-brown and greyish-white, lateral tail-coverts with the outer webs white; tibial feathers similarly barred, but paler, middle of the abdomen greyish-white.

Length to end of tail 15 inches, to end of claws 20, extent of wings $20\frac{3}{4}$; bill $2\frac{1}{8}$; tarsus 2, middle-toe and claw $2\frac{5}{12}$; wing from flexure $6\frac{2}{12}$; tail $2\frac{1}{8}$. Weight 11 oz.

Adult Female. Plate CCIV. Fig. 2.

The Female, which is smaller than the male, is similar in colouring, but has the tints somewhat duller.

Length to end of tail 14 inches, to end of claws $17\frac{3}{4}$; extent of wings $19\frac{1}{4}$. Weight $7\frac{3}{4}$ oz.

THE VIRGINIAN RAIL.

RALLUS VIRGINIANUS, LINN.

PLATE CCV. MALE, FEMALE, AND YOUNG.

THIS species, which, although smaller, bears a great resemblance to the Great Red-breasted Rail or Fresh-water Marsh-Hen, is met with in most parts of the United States at different seasons. Many spend the winter within our southern limits, and I have found them at that time in Lower Louisiana, the Floridas, Georgia, and the Carolinas. In the Western country some have been known to remain until severe frost came on, and there they usually stay to a much later period than in our Middle Districts, from which they generally retire southward in the beginning of October. During spring and summer, I observed some in different places from the shores of the Wabash River in Illinois, to those of the St John's in the British province of New Brunswick. In the latter district, they were considered extremely rare birds by the inhabitants, some of whom brought me a few as great curiosities. Farther north, I neither saw nor heard of any; but on the borders of Lakes Erie and Michigan, they breed in considerable numbers, as well as near our maritime districts.

In its habits the *Rallus virginianus* is intermediate between the *R. crepitans* and *R. carolinus*: it obtains its food as well in salt-water marshes, as in fresh meadows, watery savannahs, and the borders of ponds and rivers. The latter situations, however, seem to suit it best during summer; but whenever both kinds of places are combined, or near each other, there you are sure to meet with it.

The time of breeding varies according to the latitude of the place. I have found the female sitting on her eggs in the beginning of March, a few miles from New Orleans; in that of April in Kentucky, near Henderson; about a fortnight later near Vincennes, in Illinois; and from the 10th of May to the middle of June, in the Middle and Eastern States. The males usually arrive at the breeding-places a week or ten days before the females. They travel silently and by night, as I have ascertained by observing them proceed singly and in a direct course, at a height of only a few feet, over our broad rivers, or over level land, when their speed is such as is never manifested by them under ordinary circum-

stances. Their movements can be easily traced for fifty yards or so during nights of brilliant moonshine, when you see them passing with a constant beat of the wings, in the manner of a Green-winged Teal. As soon as they arrive at their destination, they may be heard emitting their cries about sunset, occasionally through the night, and again with increased vigour at the dawn of day, as if expressing their impatience for the arrival of their companions. The love-notes of this species have some resemblance to those of the Clapper Rail, but now and then are changed for others something like *crek, crek, creek, or creek, creek, creek*. Being expert ventriloquists, like their congeners, they sometimes seem to be far off, when in fact they are within a few yards of you. One morning I had the good fortune to witness their amatory gestures, which I will here try to describe, that you may in some degree participate in the amusement which the scene afforded me.

The sun had scarcely begun to send his horizontal rays over the lake, on the margin of which I stood, revolving in my mind the many enjoyments which the Author of nature has benignantly accorded to his creatures. The air was clear and serene, and the waters spread before me without a ruffle on their surface. The notes of the Rail came loudly on my ear, and on moving towards the spot whence they proceeded, I observed the bird exhibiting the full ardour of his passion. Now with open wings raised over its body, it ran around its beloved, opening and flirting its tail with singular speed. Each time it passed before her, it would pause for a moment, raise itself to the full stretch of its body and legs, and bow to her with all the grace of a well-bred suitor of our own species. The female also bowed in recognition, and at last, as the male came nearer and nearer in his circuits, yielded to his wishes, on which the pair flew off in the manner of house-pigeons, sailing and balancing their bodies on open wings until out of sight. During this exhibition, the male emitted a mellow note, resembling the syllables *cuckoe, cuckoe*, to which the female responded with the kind of lisping sound uttered by young birds of the species when newly hatched.

Excepting our Little Partridge, I know no bird so swift of foot as the Virginian Rail. In fact, I doubt if it would be an easy matter for an active man to outstrip one of them on plain ground; and to trust to one's speed for raising one among the thick herbage to which they usually resort, would certainly prove fallacious. There they run to a short distance, then tack about, and again scud away in a lateral direction, so as

to elude the best dog, or if likely to be overtaken, rise on wing, fly with dangling legs eight or ten yards, drop among the weeds, and run off as swiftly as before. Notwithstanding all this, I managed to secure a good number of them by means of a partridge net, setting the wings of that apparatus at very obtuse angles, and calling them by imitating the lisping notes of the female from some distance beyond the bag of the net. Now and then I found them too cunning for me, as, on discovering that the wings of the net were in their way, they would get over it in the same manner as that in which a sailor mounts the shrouds of a ship. Our Common Coot uses the same artifice, as I shall elsewhere describe.

The nest of the Virginian Rail is not easily found after incubation has commenced, for then the male, contrary to the habits of most birds, becomes comparatively silent, and the female quite mute. At such times I have once or twice almost trodden on one, which I should never have discovered, had not the poor bird fluttered off in despair, employing all the artifices used by other species on such occasions. It is placed on a small elevation formed by the accumulation of the stalks of a large bunch of grasses, in the centre of which some dry weeds are arranged to the height of two or three inches, with a very shallow cavity. The eggs are four or five, seldom more than six or seven, and resemble in colour those of the *Rallus crepitans*, although smaller, measuring an inch and a quarter in length, by eleven-twelfths in breadth, and being rather more rounded. The young are covered with a jet black down, and run after their mother as soon as they make their escape from the egg;—at least I suppose this to be the case, on account of my having caught some that seemed newly hatched. The mother leads them with the greatest care among the long grass of the damp meadows, or the weeds growing near the ponds, to which they resort at all times, and particularly near the margins of pools or muddy streams, into which they run and disperse on the least appearance of danger. When no water is near, the little ones squat in silence, and await the call of their parent, to which all at once answer, when they quickly collect once more around her.

This species is able to cling to, and climb along the blades of tall grasses, even under water, when in danger, and is equally able to swim gracefully to a considerable distance, as to alight on low bushes, in which situation I have shot a few of them. When amid the broad leaves of water-lilies, they walk and run on them with as much ease as the Gallinules; and I would be inclined to assign them an intermediate station

between the genera *Rallus* and *Crex*, as they partake of the habits of both. When pursued, the Virginian Rail is, with great difficulty, put up, as I have already mentioned, but when it is once on wing it may be shot by a very ordinary gunner. It rises without noise, flies off with its legs dangling and its neck stretched out, but seldom proceeds farther than twenty or thirty yards at a time, unless when it has a stream to cross, or during its migrations. Like all the other species with which I am acquainted, it feeds both by day and by night. Its food consists of small slugs, snails, aquatic insects, worms, crustacea, and the seeds of those grasses which grow in salt or fresh water marshes, in either of which they reside and even breed. I have not been able to ascertain whether they lay more than once in the season; but, on account of the comparatively small number of this species, I am inclined to suppose that they seldom raise more than one brood, unless their eggs have been destroyed, whether by inundation or otherwise.

The Virginian Rail is not without enemies; and, although it manifests a good deal of courage, and at times acts towards the Marsh Hawk in the same manner as the *Rallus crepitans*, it seldom succeeds in its attempts, and on several occasions I have seen that bird seize them as they attempted to strike it with their bill and claws for the purpose of driving it away. The minx, the garfish, the snapping turtle, and sometimes eels, destroy them, as well as the Sora Rail.

Whilst at Charleston in South Carolina, I frequently saw little strings of these birds exposed in the market, at a very low price; and they are excellent eating during autumn and winter. Their comparative scarcity, however, prevents the gunner from searching after them with the same eagerness as he pursues the *Rallus crepitans*, and to shoot a dozen in the course of a day may be considered a remarkable feat. In that country, during the latter part of autumn, and in winter, they are usually met with in the salt-marshes bordering the estuaries of large rivers.

Like the two preceding species, the Virginian Rail has the power of contracting its body to enable it to pass with more ease between the stalks of strong grasses or other plants. When observed unseen, it frequently jerks the tail upwards, in the manner of Gallinules, but the moment it notices any one of its enemies, it droops the tail, lowers its head, and runs off with the quickness of thought.

The young of this species are at first of a black colour, like that of *Rallus crepitans* and *R. elegans*; but, like those of the latter, attain the

rufous hue of the parent birds before the commencement of winter, although they increase in size and improve in the depth of their tints probably for several years.

RALLUS VIRGINIANUS, Linn. Syst. Nat. vol. i. p. 263.—*Ch. Bonaparte*, Synops. of Birds of the United States, p. 334.

RALLUS AQUATICUS, var. *Lath.* Ind. Ornith. vol. ii. p. 755.

VIRGINIAN RAIL, *RALLUS VIRGINIANUS*, *Wils.* Amer. Ornith. vol. vii. p. 109. pl. 62. fig. 2.

LESSER CLAPPER RAIL, *Nuttall*, Manual, vol. ii. p. 205.

Adult Male. Plate CCV. Fig. 1.

Bill longer than the head, slender, compressed, slightly curved, deep at the base. Upper mandible with the dorsal line slightly curved, the ridge flattish at the base, and extending a little on the forehead, convex and narrow towards the end; a deep groove runs on either side parallel to the ridge for two-thirds of the whole length; the edges inflected, with a very slight notch close to the tip. Nostrils lateral, linear, direct, open and pervious. Lower mandible with the angle very long, extremely narrow, the sides erect, slightly convex, the edges inflected, the tip narrowed, the dorsal and marginal outlines slightly arched.

Head rather small, oblong, compressed. Neck rather long. Body slender, much compressed. Feet rather long; tibia bare a considerable way above the joint; tarsus of ordinary length, compressed, anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated. Hind toe very small and slender, middle toe longest, fourth considerably shorter, and but little longer than the second; toes free, scutellate above, compressed, granulate beneath. Claws of moderate length, arched, slender, much compressed, acute, flat and marginate beneath.

Plumage rather stiff, compact, slightly glossed on the back. Feathers of the head and neck short and blended; of the forehead with the shaft enlarged and extended beyond the tip. Wings very short and broad; alula large; primaries curved, broad, tapering, but obtuse, third longest, second very little shorter, first and sixth about equal; secondaries broad and rounded. Tail extremely short, much rounded, of twelve feeble rounded feathers; the upper and lower tail-coverts nearly as long as the tail-feathers.

Bill dark brown, the lower mandible and edges of upper yellowish-

brown. Iris bright red. Feet yellowish-brown, tinged with olive; claws more dusky. The general colour of the upper parts is deep brownish-black, with streaks of light olive-brown; sides of the head dull bluish-grey, loreal space of a deeper tint; a brownish-orange line over the eye. Alula, primary quills, and tail blackish-brown; secondary quills like the back, but edged with greenish-brown, smaller coverts dark chestnut. Throat reddish-white; fore neck and breast bright orange-brown, approaching to yellowish-red; sides, abdomen, and lower wing-coverts barred with brownish-black and white, the bands of the latter narrower; tibial feathers dusky anteriorly, light reddish behind. Lower tail-coverts each with a central brownish-black spot, the edges white, the tips pale reddish.

Length to end of tail $10\frac{1}{2}$ inches, to end of claws 13, extent of wings $14\frac{1}{4}$; bill $1\frac{7}{8}$; tarsus $1\frac{5}{8}$, middle toe and claw $1\frac{9}{8}$; wing from flexure $4\frac{1}{2}$, tail $1\frac{1}{4}$.

Adult Female. Plate CCV. Fig. 2.

The Female is considerably smaller than the male, but resembles it in colouring, only the dark tints of the upper parts are lighter, the chestnut of the wings paler, and the lower parts of a less bright red.

Length $9\frac{1}{4}$.

Young bird fledged. Plate CCV. Fig. 3.

When fully fledged the young does not differ materially in colour from the old, the tints being merely somewhat duller.

In colouring this species is so nearly allied to *R. elegans*, that the description of the one might pass very well for that of the other; the principal difference being that the sides of the head are grey in the former, and dusky in the latter. Of course, the difference in size and habits is sufficient to prevent their being confounded together.

THE AMERICAN SUN PERCH.

FEW of our smaller fresh-water fishes excel either in beauty or in delicacy and flavour the species which I have chosen as the subject of this article, and few afford more pleasure to young fishers. Although it occurs in all our streams, whether rapid or gentle, small or large, in the mill-dam overshadowed by tall forest-trees, or in the open lake margined with reeds, you must never expect to find it in impure waters. Let the place be deep or shallow, broad or narrow, the water must be clear enough to allow the sun's rays to fall unimpaired on the rich coat of mail that covers the body of the Sun-fish. Look at him as he poises himself under the lee of the protecting rock beneath our feet! See how steadily he maintains his position, and yet how many rapid motions of his fins are necessary to preserve it! Now another is by his side, glowing with equal beauty, and poising itself by equally easy and graceful movements. The sun is shining, and under the lee of every stone and sunk log, some of the little creatures are rising to the surface, to enjoy the bright blaze, which enhances all their beauty. The golden hues of some parts of the body blend with the green of the emerald, while the coral tints of the lower parts and the red of its sparkling eye, render our little favourite a perfect gem of the waters.

The rushing stream boils and gurgles as it forces its way over the obstacles presented by its bed, the craggy points, large stones, and logs that are strewn along the bottom. Every one of these proves a place of rest, safety and observation to the little things, whose eyes are ever anxiously watching their favourite prey as it passes. There an unfortunate moth, swept along by the current, labours in vain to extricate itself from the treacherous element; its body, indeed, at intervals, rises a little above the surface, but its broad wings, now wet and heavy, bear it down again to the water. The Sun-fish has marked it, and as it passes his retreat, he darts towards it, with twenty of his fellows, all eager to seize the prize. The swiftest swallows it in a moment, and all immediately return to their lurking places, where they fancy themselves secure. But, alas, the Sun-fish is no more without enemies than the moth, or any other living creature. So has Nature determined, evidently to promote pru-

dence and industry, without which none can reap the full advantage of life.

On the top of yon miller's dam stands boldly erect the ardent fisher. Up to the knees, and regardless of the danger of his situation, he prepares his apparatus of destruction. A keen hook attached to his grass-line is now hid within the body of a worm or grasshopper. With a knowing eye he marks one after another every surge of the water below. Observing the top of a rock scarcely covered, he sends his hook towards it with gentleness and certainty; the bait now floats and anon sinks; his reel slowly lengthens the line, which is suddenly tightened, and he feels that a fish is secured. Now whirls the reel again, thrice has the fish tried its utmost strength and speed, but, soon panting and exhausted, it is seen floating for a moment on the surface. Nothing now is required but to bring it to hand, which done, the angler baits anew, and sends forth the treacherous morsel. For an hour or more he continues the agreeable occupation, drawing from the stream a fish at every short interval. To the willow-twigg fastened to his waist, a hundred "sunnies" are already attached. Suddenly the sky is overcast, and the crafty fisher, although aware that, with a different hook and bait, he might soon procure a fine eel or two, carefully wades to the shore, and homeward leisurely plods his way.

In this manner are the sun-fishes caught by the regular or "scientific" anglers, and a beautiful sight it is to see the ease and grace with which they allure the objects of their desire, whether in the open turbulence of the waters, or under the low boughs of the overhanging trees, where, in some deep hole, a swarm of the little creatures may be playing in fancied security. Rarely does his tackle become entangled, whilst, with incomparable dexterity, he draws one after another from the waters.

Thousands of individuals, however, there are, who, less curious in their mode of fishing, often procure as many sunnies without allowing them to play for a moment. Look at these boys! One stands on the shore, while the others are on fallen trees that project over the stream. Their rods, as you perceive, are merely shoots of the hazel or hickory, their lines are simply twine, and their hooks none of the finest. One has a calabash filled with worms and grubs of many sorts, kept alive in damp earth, and another is supplied with a bottle containing half a gross of live "hoppers;" the third has no bait at all, but borrows from his nearest neighbour. Well, there they are, "three merry boys," whirling their

rods in the air to unrol their lines, on one of which, you observe, a cork is fastened, while on another is a bit of light wood, and on the third a grain or two of large shot, to draw it at once to a certain depth. Now their hooks are baited, and all are ready. Each casts his line as he thinks best, after he has probed the depth of the stream with his rod, to enable him to place his buoy at the proper point. Bob, bob, goes the cork; down it moves; the bit of wood disappears; the leaded line tightens; in a moment up swing the sunnies, which, getting unhooked, are projected far among the grass, where they struggle in vain, until death ends their efforts. The hooks are now baited anew, and dropped into the water. The fish is abundant, the weather propitious and delightful, for it is now October, and so greedy have the sunnies become of grasshoppers and grubs, that dozens at once dash at the same bait. The lads, believe me, have now rare sport, and in an hour scarcely a fish remains in the hole. The happy children have caught perhaps some hundreds of delicious "pan-fish," to feed their parents, and delight their little sisters. Surely their pleasure is fully as great as that experienced by the scientific angler.

I have known instances when the waters of a dam having been let out, for some reason better known to the miller than to myself, all the sun-fish have betaken themselves to one or two deep holes, as if to avoid being carried away from their favourite abode. There I have seen them in such multitudes that one could catch as many as he pleased with a pin-hook, fastened to any sort of line, and baited with any sort of worm or insect, or even with a piece of a newly caught fish. Yet, and I am not able to account for it, all of a sudden, without apparent cause, they would cease to take, and no allurements whatever could entice them or the other fishes in the pool to seize the hook.

During high freshets, this species of perch seldom bites at any thing, but you may procure them with a cast-net or a seine, provided you are well acquainted with the localities. On the contrary, when the waters are low and clear, every secluded hole, every eddy under the lee of a rock, every place sheltered by a raft of timber, will afford you amusement. In some parts of the Southern States, the Negroes procure these fishes late in the autumn in shallow ponds or bayous, by wading through the water with caution, and placing at every few steps a wicker apparatus, not unlike a small barrel, open at both ends. The moment the fishes find themselves confined within the lower part of this, which is pressed to the bottom of the stream, their skippings announce their capture, and the fisher secures his booty.

This species, the *Labrus auritus* of Linnæus, the *Pomotis vulgaris* of Cuvier, seldom exceeds five or six inches in length, but is rather deep in proportion. The usual size is from four to five inches, with a depth of from two to two and a half. They are not bony, and at all seasons afford delicate eating. Having observed a considerable change in their colour in different parts of the United States, and in different streams, ponds, or lakes, I was led to think that this curious effect might be produced by the difference of colour in the water. Thus, the Sun-fish caught in the deep waters of Green River, in Kentucky, exhibit a depth of olive-brown quite different from the general tint of those caught in the colourless waters of the Ohio or Schuylkill; those of the reddish-coloured waters of the Bayous of the Louisiana swamps, look as if covered with a coppery tarnish; and, lastly, those met with in streams that glide beneath cedars or other firs, have a pale and sallow complexion.

The Sun Perch, wherever found, seems to give a decided preference to sandy, gravelly, or rocky beds of streams, avoiding those of which the bottom is muddy. At the period of depositing their eggs, this preference is still more apparent. The little creature is then seen swimming rapidly over shallows, the bed of which is mostly formed of fine gravel, when after a while it is observed to poise itself and gradually sink to the bottom, where with its fin it pushes aside the sand to the extent of eight or ten inches, thus forming a circular cavity. In a few days a little ridge is thus raised around, and in the cleared area the roe is deposited. By wading carefully over the extent of the place, a person may count forty, fifty, or more of these beds, some within a few feet of each other, and some several yards apart. Instead of abandoning its spawn, as others of the family are wont to do, this little fish keeps guard over it with all the care of a sitting bird. You observe it poised over the bed, watching the objects around. Should the rotten leaf of a tree, a piece of wood, or any other substance, happen to be rolled over the border of the bed, the Sun-fish carefully removes it, holding the obnoxious matter in its mouth, and dropping it over the margin. Having many times witnessed this act of prudence and cleanliness in the little sunny, and observed that at this period it will not seize on any kind of bait, I took it into my head one fair afternoon to make a few experiments for the purpose of judging how far its instinct or reason might induce it to act when disturbed or harassed.

Provided with a fine fishing-line, and such insects as I knew were relished by this fish, I reached a sand-bar covered by about one foot of

water, where I had previously seen many deposits. Approaching the nearest to the shore with great care, I baited my hook with a living ground-worm, the greater part of which was left at liberty to writhe as it pleased, and throwing the line up the stream, managed it so that at last it passed over the border of the nest, when I allowed it to remain on the bottom. The fish, I perceived, had marked me, and as the worm intruded on its premises, he swam to the farther side, there poised himself for a few moments, then approached the worm, and carried it in his mouth over the side next to me, with a care and gentleness so very remarkable as to afford me much surprise. I repeated the experiment six or seven times, and always with the same result. Then changing the bait, I employed a young grasshopper, which I floated into the egg-bed. The insect was removed, as the worm had been, and two attempts to hook the fish proved unsuccessful. I now threw my line with the hook bare, and managed as before. The sunny appeared quite alarmed. It swam to one side, then to another, in rapid succession, and seemed to entertain a fear that the removal of the suspicious object might prove extremely dangerous to it. Yet it gradually approached the hook, took it delicately up, and the next instant dropped it over the edge of the bed !

Reader, if you are one who, like me, have studied Nature with a desire to improve your mental faculties, and contemplate the wonderful phenomena that present themselves to the view at every step we take in her wide domain, you would have been struck, had you witnessed the actions of this little fish, as I was, with admiration of the Being who gave such instincts to so humble an object. I gazed in amazement on the little creature, and wondered that nature had endowed it with such feelings and powers. The irrepressible desire of acquiring knowledge prompted me to continue the experiment ; but with whatever dexterity I could in those days hook a fish, all my efforts proved abortive, not with this individual only, but with many others, which I subjected to the same trials.

Satisfied that at this period the Sun-fish was more than a match for me, I rolled up my line, and with the rod gave a rap on the water as nearly over the fish as I could. The sunny darted off to a distance of several yards, poised itself steadily, and as soon as my rod was raised from the water, returned to its station. The effect of the blow on the water was now apparent, for I perceived that the fish was busily employed in smoothing the bed ; but here ended my experiments on the Sun-fish.

THE WOOD DUCK.

ANAS SPONSA, LINN.

PLATE CCVI. MALES, FEMALES, AND NEST.

I HAVE always experienced a peculiar pleasure while endeavouring to study the habits of this most beautiful bird in its favourite places of resort. Never on such occasions have I been without numberless companions, who, although most of them were insensible of my presence, have afforded me hours of the never-failing delight resulting from the contemplation of their character. Methinks I am now seated by the trunk of a gigantic sycamore, whose bleached branches stretch up towards the heavens, as if with a desire to overlook the dense woods spread all around. A dark-watered bayou winds tortuously beneath the maples that margin its muddy shores, a deep thicket of canes spreading along its side. The mysterious silence is scarcely broken by the hum of myriads of insects. The blood-sucking musquito essays to alight on my hand, and I willingly allow him to draw his fill, that I may observe how dexterously he pierces my skin with his delicate proboscis, and pumps the red fluid into his body, which is quickly filled, when with difficulty he extends his tiny wings and flies off, never to return. Over the withered leaves many a tick is seen scrambling, as if anxious to elude the searching eye of that beautiful lizard. A squirrel spread flat against a tree, with its head directed downwards, is watching me; the warblers, too, are peeping from among the twigs. On the water, the large bull-frogs are endeavouring to obtain a peep of the sun; suddenly there emerges the head of an otter, with a fish in its jaws, and in an instant my faithful dog plunges after him, but is speedily recalled. At this moment, when my heart is filled with delight, the rustling of wings comes sweeping through the woods, and anon there shoots overhead a flock of Wood Ducks. Once, twice, three times, have they rapidly swept over the stream, and now, having failed to discover any object of alarm, they all alight on its bosom, and sound a note of invitation to others yet distant.

Scenes like these I have enjoyed a thousand times, yet regret that I have not enjoyed them oftener, and made better use of the oppor-

tunities which I have had of examining the many interesting objects that attracted my notice. And now, let me endeavour to describe the habits of the Wood Duck, in so far as I have been able to apprehend them.

This beautiful species ranges over the whole extent of the United States, and I have seen it in all parts from Louisiana to the confines of Maine, and from the vicinity of our Atlantic coasts as far inland as my travels have extended. It also occurs sparingly during the breeding-season in Nova Scotia; but farther north I did not observe it. Everywhere in this immense tract I have found it an almost constant resident, for some spend the winter even in Massachusetts, and far up the warm spring waters of brooks on the Missouri. It confines itself, however, entirely to fresh water, preferring at all times the secluded retreats of the ponds, bayous, or creeks, that occur so profusely in our woods. Well acquainted with man, they carefully avoid him, unless now and then during the breeding-season, when, if a convenient spot is found by them in which to deposit their eggs and raise their young, they will even locate themselves about the miller's dam.

The flight of this species is remarkable for its speed, and the ease and elegance with which it is performed. The Wood Duck passes through the woods and even amongst the branches of trees, with as much facility as the Passenger Pigeon; and while removing from some secluded haunt to its breeding-grounds, at the approach of night, it shoots over the trees like a meteor, scarcely emitting any sound from its wings. In the lower parts of Louisiana and Kentucky, where they abound, these regular excursions are performed by flocks of from thirty to fifty or more individuals. In several instances I have taken perhaps undue advantage of their movements to shoot them on the wing, by placing myself between their two different spots of resort, and keeping myself concealed. In this manner I have obtained a number in the course of an hour of twilight; and I have known some keen sportsmen kill as many as thirty or forty in a single evening. This sport is best in the latter part of autumn, after the old males have joined the flocks of young led by the females. Several gunners may then obtain equal success by placing themselves at regular distances in the line of flight, when the birds having in a manner to run the gauntlet, more than half of a flock have been brought down in the course of their transit. While passing through the air on such occasions, the birds are never heard to emit a single note.

The Wood Duck breeds in the Middle States about the beginning of April, in Massachusetts a month later, and in Nova Scotia or on our northern lakes, seldom before the first days of June. In Louisiana and Kentucky, where I have had better opportunities of studying their habits in this respect, they generally pair about the 1st of March, sometimes a fortnight earlier. I never knew one of these birds to form a nest on the ground, or on the branches of a tree. They appear at all times to prefer the hollow broken portion of some large branch, the hole of our largest Woodpecker (*Picus principalis*), or the deserted retreat of the fox-squirrel; and I have frequently been surprised to see them go in and out of a hole of any one of these, when their bodies while on wing seemed to be nearly half as large again as the aperture within which they had deposited their eggs. Once only I found a nest (with ten eggs) in the fissure of a rock on the Kentucky River a few miles below Frankfort. Generally, however, the holes to which they betake themselves are either over deep swamps, above cane brakes, or broken branches of high sycamores, seldom more than forty or fifty feet from the water. They are much attached to their breeding-places, and for three successive years I found a pair near Henderson, in Kentucky, with eggs in the beginning of April, in the abandoned nest of an Ivory-billed Woodpecker. The eggs, which are from six to fifteen, according to the age of the bird, are placed on dry plants, feathers, and a scanty portion of down, which I believe is mostly plucked from the breast of the female. They are perfectly smooth, nearly elliptical, of a light colour between buff and pale green, two inches in length by one and a half in diameter; the shell is about equal in firmness to that of the Mallard's egg, and quite smooth.

No sooner has the female completed her set of eggs than she is abandoned by her mate, who now joins others, which form themselves into considerable flocks, and thus remain apart until the young are able to fly, when old and young of both sexes come together, and so remain until the commencement of the next breeding season. In all the nests which I have examined, I have been rather surprised to find a quantity of feathers belonging to birds of other species, even those of the domestic fowl, and particularly of the wild goose and wild turkey. On coming upon a nest with eggs when the bird was absent in search of food, I have always found the eggs covered over with feathers and down, although quite out of sight, in the depth of a woodpecker's or squirrel's hole. On the contrary, when the nest was placed in the broken branch of a tree, it could easily

be observed from the ground, on account of the feathers, dead sticks, and withered grasses about it. If the nest is placed immediately over the water, the young, the moment they are hatched, scramble to the mouth of the hole, launch into the air with their little wings and feet spread out, and drop into their favourite element; but whenever their birth-place is at some distance from it, the mother carries them to it one by one in her bill, holding them so as not to injure their yet tender frame. On several occasions, however, when the hole was thirty, forty, or more yards from a bayou or other piece of water, I observed that the mother suffered the young to fall on the grasses and dried leaves beneath the tree, and afterwards led them directly to the nearest edge of the next pool or creek. At this early age, the young answer to their parents' call with a mellow *pee, pee, pee*, often and rapidly repeated. The call of the mother at such times is low, soft, and prolonged, resembling the syllables *pe-ēē*, *pe-ēē*. The watch-note of the male, which resembles *hoc-ēēk*, is never uttered by the female; indeed, the male himself seldom uses it unless alarmed by some uncommon sound or the sight of a distant enemy, or when intent on calling passing birds of his own species.

The young are carefully led along the shallow and grassy shores, and taught to obtain their food, which at this early period consists of small aquatic insects, flies, mosquitoes, and seeds. As they grow up, you now and then see the whole flock run as it were along the surface of the sluggish stream in chase of a dragon-fly, or to pick up a grasshopper or locust that has accidentally dropped upon it. They are excellent divers, and when frightened instantly disappear, disperse below the surface, and make for the nearest shore, on attaining which they run for the woods, squat in any convenient place, and thus elude pursuit. I used two modes of procuring them alive on such occasions. One was with a bag net, such as is employed in catching our little partridge, and which I placed half sunk in the water, driving the birds slowly, first within the wings, and finally into the bag. In this manner I have caught young and old birds of this species in considerable numbers. The other method I accidentally discovered while on a shooting excursion, accompanied by an excellent pointer dog. I observed that the sight of this faithful animal always immediately frightened the young ducks to the shores, the old one taking to her wings as soon as she conceived her brood to be safe. But the next instant Juno would dash across the bayou or pond, reach the opposite bank, and immediately follow on their track. In a few moments she

would return with a duckling held between her *lips*, when I would take it from her unhurt.

While residing at Henderson, I thought of taming a number of Wood Ducks. In the course of a few days Juno procured for me, in the manner above described, as many as I had a mind for, and they were conveyed home in a bag. A dozen or more were placed in empty flour barrels, and covered over for some hours, with the view of taming them the sooner. Several of these barrels were placed in the yard, but whenever I went and raised their lids, I found all the little ones hooked by their sharp claws to the very edge of their prisons, and, the instant that room was granted, they would tumble over and run off in all directions. I afterwards frequently saw these young birds rise from the bottom to the brim of a cask, by moving a few inches at a time up the side, and fixing foot after foot by means of their diminutive hooked claws, which, in passing over my hand, I found to have points almost as fine as those of a needle. They fed freely on corn meal soaked in water, and as they grew, collected flies with great expertness. When they were half-grown I gave them great numbers of our common locusts yet unable to fly, which were gathered by boys from the trunks of trees and the "iron weeds," a species of wild hemp very abundant in that portion of the country. These I would throw to them on the water of the artificial pond which I had in my garden, when the eagerness with which they would scramble and fight for them always afforded me great amusement. They grew up apace, when I pinioned them all, and they subsequently bred in my grounds in boxes which I had placed conveniently over the water, with a board or sticks leading to them, and an abundant supply of proper materials for a nest placed in them.

Few birds are more interesting to observe during the love season than Wood Ducks. The great beauty and neatness of their apparel, and the grace of their motions, always afford pleasure to the observer; and, as I have had abundant opportunities of studying their habits at that period, I am enabled to present you with a full account of their proceedings.

When March has again returned, and the Dogwood expands its pure blossoms to the sun, the Cranes soar away on their broad wings, bidding our country adieu for a season, flocks of water-fowls are pursuing their early migrations, the frogs issue from their muddy beds to pipe a few notes of languid joy, the Swallow has just arrived, and the Bluebird has returned to his box. The Wood Duck almost alone remains on the pool,

as if to afford us an opportunity of studying the habits of its tribe. Here they are, a whole flock of beautiful birds, the males chasing their rivals, the females coquetting with their chosen beaux. Observe that fine drake ! how gracefully he raises his head and curves his neck ! As he bows before the object of his love, he raises for a moment his silken crest. His throat is swelled, and from it there issues a guttural sound, which to his beloved is as sweet as the song of the Wood Thrush to its gentle mate. The female, as if not unwilling to manifest the desire to please which she really feels, swims close by his side, now and then caresses him by touching his feathers with her bill, and shews displeasure towards any other of her sex that may come near. Soon the happy pair separate from the rest, repeat every now and then their caresses, and at length, having sealed the conjugal compact, fly off to the woods to search for a large woodpecker's hole. Occasionally the males fight with each other, but their combats are not of long duration, nor is the field ever stained with blood, the loss of a few feathers or a sharp tug of the head being generally enough to decide the contest. Although the Wood Ducks always form their nests in the hollow of a tree, their caresses are performed exclusively on the water, to which they resort for the purpose, even when their loves have been first proved far above the ground on a branch of some tall sycamore. While the female is depositing her eggs, the male is seen to fly swiftly past the hole in which she is hidden, erecting his crest, and sending forth his love-notes, to which she never fails to respond.

On the ground the Wood Duck runs nimbly and with more grace than most other birds of its tribe. On reaching the shore of a pond or stream, it immediately shakes its tail sidewise, looks around, and proceeds in search of food. It moves on the larger branches of trees with the same apparent ease ; and, while looking at thirty or forty of these birds perched on a single sycamore on the bank of a secluded bayou, I have conceived the sight as pleasing as any that I have ever enjoyed. They always reminded me of the Muscovy Duck, of which they look as if a highly finished and flattering miniature. They frequently prefer walking on an inclined log or the fallen trunk of a tree, one end of which lies in the water, while the other rests on the steep bank, to betaking themselves to flight at the sight of an approaching enemy. In this manner I have seen a whole flock walk from the water into the woods, as a steamer was approaching them in the eddies of the Ohio or Mississippi. They swim and dive well, when wounded and closely pursued, often stopping at the

edge of the water with nothing above it but the bill, but at other times running to a considerable distance into the woods, or hiding in a cane-brake beside a log. In such places I have often found them, having been led to their place of concealment by my dog. When frightened, they rise by a single spring from the water, and are as apt to make directly for the woods as to follow the stream. When they discover an enemy while under the covert of shrubs or other plants on a pond, instead of taking to wing, they swim off in silence among the thickest weeds, so as generally to elude your search, by landing and running over a narrow piece of ground to another pond. In autumn, a whole covey may often be seen standing or sitting on a floating log, pluming and cleaning themselves for hours. On such occasions the knowing sportsman commits great havock among them, killing half a dozen or more at a shot.

The food of the Wood Duck, or as it is called in the Western and Southern States, the Summer Duck, consists of acorns, beech-nuts, grapes, and berries of various sorts, for which they *half-dive*, in the manner of the Mallard for example, or search under the trees on the shores and in the woods, turning over the fallen leaves with dexterity. In the Carolinas, they resort under night to the rice fields, as soon as the grain becomes milky. They also devour insects, snails, tadpoles, and small water lizards, swallowing at the same time a quantity of sand or gravel to aid the trituration of their food.

The best season in which to procure these birds for the table is from the beginning of September until the first frost, their flesh being then tender, juicy, and in my opinion excellent. They are easily caught in figure-of-four traps. I know a person now residing in South Carolina, who has caught several hundreds in the course of a week, bringing them home in bags across his horse's saddle, and afterwards feeding them in coops on Indian corn. In that State, they are bought in the markets for thirty or forty cents the pair. At Boston, where I found them rather abundant during winter, they bring nearly double that price; but in Ohio or Kentucky twenty-five cents are considered an equivalent. Their feathers are as good as those of any other species; and I feel well assured that, with a few years of care, the Wood Duck might be perfectly domesticated, when it could not fail to be as valuable as it is beautiful.

Their sense of hearing is exceedingly acute, and by means of it they often save themselves from their wily enemies the minx, the polecat, and the racoon. The vile snake that creeps into their nest and destroys their

eggs, is their most pernicious enemy on land. The young, when on the water, have to guard against the snapping turtle, the gar-fish, and the eel, and in the Southern Districts, against the lashing tail and the tremendous jaws of the alligator.

Those which breed in Maine, New Brunswick, and Nova Scotia, move southward as soon as the frosts commence, and none are known to spend the winter so far north. I have been much surprised to find WILSON speaking of the Wood Ducks as a species of which more than five or six individuals are seldom seen together. A would-be naturalist in America, who has had better opportunities of knowing its habits than the admired author of the "American Ornithology," repeats the same error, and, I am told, believes that all his statements are considered true. For my own part, I assure you, I have seen hundreds in a single flock, and have known fifteen to be killed by a single shot. They, however, raise only one brood in the season, unless their eggs or young have been destroyed. Should this happen, the female soon finds means of recalling her mate from the flock which he has joined.

On having recourse to a journal written by me at Henderson nearly twenty years ago, I find it stated that the attachment of a male to a female lasts only during one breeding season; and that the males provide themselves with mates in succession, the strongest taking the first choice, and the weakest being content with what remains. The young birds which I raised, never failed to make directly for the Ohio, whenever they escaped from the grounds, although they never had been there before. The only other circumstances which I have to mention are, that when entering the hole in which its nest is, the bird dives as it were into it at once, and does not alight first against the tree; that I have never witnessed an instance of its taking possession, by force, of a woodpecker's hole; and lastly, that during winter they allow ducks of different species to associate with them.

ANAS SPONSA, *Linn. Syst. Nat.* vol. i. p. 207.—*Lath. Ind. Ornith.* vol. ii. p. 871.—*Ch.*

Bonaparte, *Synops. of Birds of the United States*, p. 385.

SUMMER DUCK, OR WOOD DUCK, ANAS SPONSA, *Wils. Amer. Ornith.* vol. viii. p. 97. pl. 78. fig. 3.—*Nuttall*, *Manual*, vol. ii. p. 394.

DENDRONESSA SPONSA, *Richards and Swaine. Fauna Bor. Amer.* part ii. p. 446.

Adult Male. Plate CCVI. Fig. 1, 3.

Bill shorter than the head, deeper than broad at the base, depressed towards the end, slightly narrowed towards the middle of the unguis, the frontal angles prolonged and pointed. Upper mandible with the dorsal line at first sloping, then concave, along the unguis convex, the ridge broad and flat at the base, then broadly convex, the sides concave and perpendicular at the base, convex and sloping towards the end, edges soft, with about twenty-two internal lamellæ, unguis broadly elliptical, curved, rounded. Nostrils subbasal, lateral, rather small, oval, pervious. Lower mandible flattish, with the angle very long and rather narrow, the dorsal line very short, convex, the sides convex, the edges soft and rounded, lamellate above.

Head of moderate size, neck rather long and slender, body full and depressed, wings rather small. Feet very short, strong, placed rather far back; tarsus very short, considerably compressed, at its lower part anteriorly with two series of scutella, the rest covered with reticulated angular scales. Toes scutellate above; first very small, free, with a narrow membrane beneath, third longest, fourth a little shorter; claws small, curved, compressed, acute, the hind one smaller and more curved, that of the third toe with an inner sharp edge.

Plumage dense, soft, blended, generally glossed. Feathers of the middle of the head and upper part of hind neck, very narrow, elongated, and incurved, of the rest of the head and upper part of neck very short, of the back and lower parts in general broad and rounded, excepting on the shoulders before the wings, where they are enlarged, very broad and abrupt. Wings of moderate length, narrow, acute; primaries curved, strong, tapering, first and second longest; secondaries broad, rounded. Tail of moderate length, rather broad, much rounded, of sixteen rounded feathers.

Upper mandible bright red at the base, pale yellow on the sides, the intermediate space along the ridge, and the unguis, black, as in the lower mandible and its membrane. Iris and edges of eyelids bright red. Feet

dull orange, claws black. Upper part of head, and space between the bill and eye deep green, and highly glossed ; below the latter space a patch of dark purple, and a larger one of the same colour, but lighter, behind the eye ; sides of the neck, its hind part under the crest, and the middle all round very dark purple. A narrow line along the base of the upper mandible and over the eye, meeting on the occiput, pure white, as are some of the feathers of the crest ; another from behind the eye, meeting below the occiput, and including several of the lower elongated feathers. Throat, for more than three inches, pure white, with a process on each side a little beyond the eye, and another nearly halfway down the neck. Sides of the neck, and its lower part anteriorly reddish-purple, each feather on the latter with a triangular white tip. Middle of the neck behind, back and rump, very dark reddish-brown, the latter deeper, and tinged with green ; upper tail-coverts and tail greenish-black ; some of the lateral tail-coverts dull reddish-purple, a few on either side with their central filaments light red. Smaller wing-coverts, alula and primaries dull greyish-brown ; most of the latter with part of their outer web greyish-white, and their inner towards the end darker and glossed with green. Secondary quills tipped with white, the outer webs green, with purple reflections, those of the inner secondaries and scapulars velvet-black, their inner webs partially glossed and changing to green. The broad feathers anterior to the wings are white, terminated with black ; breast and abdomen greyish-white ; feathers under the wings yellowish-grey, minutely undulated with black and white bars ; lower wing-coverts and axillar feathers white, barred with greyish-brown ; lower tail-coverts dull greyish-brown.

Length $20\frac{1}{2}$ inches, to end of claws $17\frac{1}{2}$, extent of wings 28 ; bill $1\frac{5}{8}$; tarsus $1\frac{5}{8}$, middle toe and claw $2\frac{3}{8}$; wing from flexure 9, tail $4\frac{1}{4}$.

Adult Female. Plate CCVI. Figs. 2, 4.

The female is considerably smaller, and differs greatly from the male in colouring. The feathers of the head are not elongated, but those of the upper part of the neck behind are slightly so. In other respects the plumage presents nothing very remarkable, and is similar to that of the male, only the feathers anterior to the wing, the upper hypochondrial, the inner secondaries and the rump-feathers are not enlarged, as in him. Bill blackish-brown ; feet dusky, tinged with yellow. Upper part of head dusky, glossed with green, sides of the head and neck, with the hind

part of the latter, light brownish-grey ; throat white, but without the lateral processes of the male. Fore part of neck below and sides light yellowish-brown, mottled with dark greyish-brown, as are the sides under the wings ; breast and abdomen white, the former spotted with brown. Hind neck, back, and rump, dark brown, glossed with green and purple. Wings as in the male, but the speculum less, and the secondaries externally faint reddish-purple, the velvet black of the male diminished to a few narrow markings. Tail dark brown, glossed with green ; lower tail-coverts pale greyish-brown, mottled with white ; lower wing-coverts as in the male.

Length $19\frac{1}{2}$ inches.

The tree represented in the plate is the *Platanus occidentalis*, which in different parts of the United States is known by the names of Button-wood, Sycamore, Plane-tree, and Water Beech, and in Canada by that of Cotton-tree. It is one of our largest trees, and on the banks of our great western and southern rivers, often attains a diameter of eight or ten feet. Although naturally inclined to prefer the vicinity of water, it grows in almost every kind of situation, and thrives even in the streets of several of our eastern cities, such as Philadelphia and New York.

THE BOOBY GANNET.

SULA FUSCA, BRISS.

PLATE CCVII. MALE.

As the Marion was nearing the curious islets of the Tortugas, one of the birds that more particularly attracted my notice was of this species. The nearer we approached the land, the more numerous did they become, and I felt delighted with the hope that ere many days should elapse, I should have an opportunity of studying their habits. As night drew her sombre curtain over the face of nature, some of these birds alighted on the top-yard of our bark, and I observed ever afterwards that they manifested a propensity to roost at as great a height as possible above the surrounding objects, making choice of the tops of bushes, or even upright poles, and disputing with each other the privilege. The first that was shot at, was approached with considerable difficulty : it had alighted on the prong of a tree which had floated and been fastened to the bottom of a rocky shallow at some distance from shore ; the water was about four feet deep and quite rough ; sharks we well knew were abundant around us ; but the desire to procure the bird was too strong to be overcome by such obstacles. In an instant, the pilot and myself were over the sides of the boat, and onward we proceeded with our guns cocked and ready. The yawl was well manned, and its crew awaiting the result. After we had struggled through the turbulent waters about a hundred yards, my companion raised his gun and fired ; but away flew the bird with a broken leg, and we saw no more of it that day. Next day, however, at the same hour, the Booby was seen perched on the same prong, where, after resting about three hours, it made off to the open sea, doubtless in search of food.

About eight miles to the north-east of the Tortugas Lighthouse, lies a small sand-bar a few acres in extent, called Booby Island, on account of the number of birds of this species that resort to it during the breeding-season, and to it we accordingly went. We found it not more than a few feet above the surface of the water, but covered with Boobies, which lay basking in the sunshine, and pluming themselves. Our attempt to land on the island before the birds should fly off, proved futile, for before

we were within fifty yards of it, they had all betaken themselves to flight, and were dispersing in various directions. We landed, however, distributed ourselves in different parts, and sent the boat to some distance, the pilot assuring us that the birds would return. And so it happened. As they approached, we laid ourselves as flat as possible in the sand, and although none of them alighted, we attained our object, for in a couple of hours we procured thirty individuals of both sexes and of different ages, finding little difficulty in bringing them down as they flew over us at a moderate height. The wounded birds that fell on the ground made immediately for the water, moving with more ease than I had expected from the accounts usually given of the awkward motions of these birds on the land. Those which reached the water swam off with great buoyancy, and with such rapidity, that it took much rowing to secure some of them, while most of those that fell directly into the sea with only a wing broken, escaped. The island was covered with their dung, the odour of which extended to a considerable distance leeward. In the evening of the same day we landed on another island, named after the Noddy, and thickly covered with bushes and low trees, to which thousands of that species of Tern resort for the purpose of breeding. There also we found a great number of Boobies. They were perched on the top-branches of the trees, on which they had nests, and here again we obtained as many as we desired. They flew close over our heads, eyeing us with dismay but in silence; indeed, not one of these birds ever emitted a cry, except at the moment when they rose from their perches or from the sand. Their note is harsh and guttural, somewhat like that of a strangled pig, and resembling the syllables *hork, hork*.

The nest of the Booby is placed on the top of a bush at a height of from four to ten feet. It is large and flat, formed of a few dry sticks, covered and matted with sea-weeds in great quantity. I have no doubt that they return to the same nest many years in succession, and repair it as occasion requires. In all the nests which I examined, only one egg was found, and as most of the birds were sitting, and some of the eggs had the chick nearly ready for exclusion, it is probable that these birds raise only a single young one, like the Common Gannet or Solan Goose. The egg is of a dull white colour, without spots, and about the size of that of a common hen, but more elongated, being $2\frac{3}{4}$ inches in length, with a diameter of $1\frac{1}{4}$. In some nests they were covered with filth from the parent bird, in the manner of the Florida Cormorant. The

young, which had an uncouth appearance, were covered with down; the bill and feet of a deep livid blue or indigo colour. On being touched, they emitted no cry, but turned away their heads at every trial. A great quantity of fish lay beneath the trees in a state of putrefaction, proving how abundantly the young birds were supplied by their parents. Indeed, while we were on Noddy Island, there was a constant succession of birds coming in from the sea with food for their young, consisting chiefly of flying-fish and small mullets, which they disgorged in a half macerated state into the open throats of their offspring. Unfortunately the time afforded me on that coast was not sufficient to enable me to trace the progress of their growth. I observed, however, that none of the birds which were still brown had nests, and that they roosted apart, particularly on Booby Island, where also many barren ones usually resorted, to lie on the sand and bask in the sun.

The flight of the Booby is graceful and extremely protracted. They pass swiftly at a height of from twenty yards to a foot or two from the surface, often following the troughs of the waves to a considerable distance, their wings extended at right angles to the body; then, without any apparent effort, raising themselves and allowing the rolling waters to break beneath them, when they tack about, and sweep along in a contrary direction in search of food, much in the manner of the true Petrels. Now, if you follow an individual, you see that it suddenly stops short, plunges headlong into the water, pierces with its powerful beak and secures a fish, emerges again with inconceivable ease, after a short interval rises on wing, performs a few wide circlings, and makes off toward some shore. At this time its flight is different, being performed by flappings for twenty or thirty paces, with alternate sailings of more than double that space. When overloaded with food, they alight on the water, where, if undisturbed, they appear to remain for hours at a time, probably until digestion has afforded them relief.

The range to which this species confines itself along our coast, seldom extends beyond Cape Hatteras to the eastward, but they become more and more numerous the farther south we proceed. They breed abundantly on all such islands or keys as are adapted for the purpose, on the southern and western coasts of the Floridas and in the Gulf of Mexico, where I was told they breed on the sand-bars. Their power of wing seems sufficient to enable them to brave the tempest, while during a continuance of

fair weather they venture to a great distance seaward, and I have seen them fully 200 miles from land.

The expansibility of the gullet of this species enables it to swallow fishes of considerable size, and on such occasions their mouth seems to spread to an unusual width. In the throats of several individuals that were shot as they were returning to their nests, I found mullets measuring seven or eight inches, that must have weighed fully half a pound. Their body beneath the skin, is covered with numerous air-cells, which probably assist them in raising or lowering themselves while on wing, and perhaps still more so when on the point of performing the rapid plunge by which they secure their prey.

Their principal enemies during the breeding-season are the American Crow and the Fish Crow, both of which destroy their eggs, and the Turkey Buzzard, which devours their young while yet unfledged. They breed during the month of May, but I have not been able to ascertain if they raise more than one brood in the season. The adult birds chase away those which are yet immature during the period of incubation. It would seem that they take several years in attaining their perfect state.

When procured alive, they feed freely, and may be kept any length of time, provided they are supplied with fish. No other food, however, could I tempt them to swallow, excepting slices of turtle, which after all they did not seem to relish. In no instance did I observe one drinking. Some authors have stated that the Frigate Pelican and the Lestris force the Booby to disgorge its food that they may obtain it; but this I have never witnessed. Like the Common Gannet, they may be secured by fastening a fish to a soft plank, and sinking it a few feet beneath the surface of the water, for if they perceive the bait, which they are likely to do if they pass over it, they plunge headlong upon it, and drive their bill into the wood.

When a Booby has alighted on the spar of a vessel, it is no easy matter to catch it, unless it is much fatigued; but if exhausted and asleep, an expert seaman may occasionally secure one. I was informed that after the breeding-season, these birds roost on trees in company with the Brown Pelican and a species of Tern, *Sterna stolidus*, and spend their hours of daily rest on the sand-banks. Our pilot, who, as I have mentioned in my second volume, was a man of great observation, assured me that while at Vera Cruz, he saw the fishermen there go to sea, and re-

turn from considerable distances, simply by following the course of the Boobies.

The bills and legs of those which I procured in the brown plumage, and which were from one to two years of age, were dusky blue. These were undergoing moult on the 14th of May. At a more advanced age, the parts mentioned become paler, and when the bird has arrived at maturity, are as represented in my plate. I observed no external difference between the sexes in the adult birds. The stomach is a long dilatable pouch, thin, and of a yellow colour. The body is muscular, and the flesh, which is of a dark colour, tough, and having a disagreeable smell, is scarcely fit for food.

I am unable to find a good reason for those who have chosen to call these birds *boobies*. Authors, it is true, generally represent them as extremely *stupid*; but to me the word is utterly inapplicable to any bird with which I am acquainted. The Woodcock, too, is said to be stupid, as are many other birds; but my opinion, founded on pretty extensive observation, is, that it is only when birds of any species are unacquainted with man, that they manifest that kind of *ignorance* or *innocence* which he calls *stupidity*, and by which they suffer themselves to be imposed upon. A little acquaintance with him soon enables them to perceive enough of his character to induce them to keep aloof. This I observed in the Booby Gannet, as well as in the Noddy Tern, and in certain species of land birds of which I have already spoken. After my first visit to Booby Island in the Tortugas, the Gannets had already become very shy and wary, and before the Marion sailed away from those peaceful retreats of the wandering sea-birds, the *Boobies* had become so knowing, that the most expert of our party could not get within shot of them.

PELECANUS SULA, *Lin.* Syst. Nat. vol. i. p. 218.—*Lath.* Index Ornith. vol. ii. p. 892.

SULA FUSCA, *Ch. Bonaparte*, Synops. of Birds of the United States, p. 408.

BOOBY, SULA FUSCA, *Nuttall*, Manual, vol. ii. p. 500.

Adult Male. Plate CCVII.

Bill longer than the head, opening beyond the eyes, straight, elongated-conical, broader above than beneath at the base, compressed. Upper mandible with the dorsal line convex at the base, then a little concave, and towards the tip slightly arched, ridge very broad, convex, separated

by a seam on each side, from the sides, which are nearly perpendicular, edges sharp, inflected, serrated, tip acute. No external nostrils. Lower mandible prolonged at the base behind the upper, its angle very long, wide at the base, with a bare membrane, very narrow towards the end, dorsal line straight, ascending, sides convex, tip very acute, edges serrated towards the end.

Head rather large; neck rather long and thick; body of moderate bulk, rather elongated; wings long. Feet short, strong, placed rather far behind; tibiæ concealed; tarsus very short, rounded before, sharp behind, covered all round with reticular scales; toes all united by membranes; first very short, being about half the length of the second, third and fourth longest and nearly equal, but the claw of the third is much longer than that of the fourth; claws small, compressed, acute, curved, that of the third toe largest, depressed, curved outwards, with a thin pectinated inner edge.

Plumage generally short, close, rather compact, the feathers small and rounded; those on the head very small; loreal and orbital spaces bare, as is that in the angle of the lower mandible, and a short space above the tibio-tarsal joint; wings long, acute, narrow; primaries strong, narrow, tapering rapidly to a rounded point, first and second longest and about equal, the rest rapidly graduated; secondaries short, rather broad, narrowed towards the rounded point. Tail rather long, cuneate, of twelve narrow, tapering feathers.

Bill and naked parts at its base bright yellow, pale flesh-coloured towards the end; a dusky spot before the eye. Iris white. Tarsi, toes, and their connecting webs, pale yellow, claws white. Head, neck all round, upper parts in general, and lower surface of wings, dusky brown, tinged with grey; the breast, abdomen, and lower tail-coverts, pure white.

Length 31 inches, to end of claws 27, extent of wings $29\frac{1}{4}$; bill along the back $3\frac{1}{2}$, along the edge 5; tarsus $1\frac{2}{3}$, middle toe and claw $3\frac{1}{4}$. Wing from flexure $16\frac{1}{2}$, tail $8\frac{1}{2}$. Weight 3 lb. $4\frac{1}{2}$ oz.

The Female resembles the male, but is smaller.

The Young, when fledged, are of a greyish-brown colour all over, the breast and abdomen being merely a little lighter than the rest. The bill and claws are dusky, the tarsi and toes with their membranes dull yellow.

ESQUIMAUX CURLEW.

NUMENIUS BOREALIS, LATH.

PLATE CCVIII. MALE AND FEMALE.

I REGRET that I am unable to present a complete history of the Esquimaux Curlew. It is true I might somewhat enlarge my account of its habits, were I to borrow from others, but as I have resolved to confine myself to the results of my own observation, unless in certain cases, in which I always take care to give my authorities, I hope you will be pleased with the little which I have to offer.

Previous to my voyage to Labrador, I had seen only a single bird of this species, which was kindly given me by my learned friend WILLIAM OAKES, Esq. of Ipswich, Massachusetts, who had procured it in his immediate neighbourhood, where, as I have since ascertained, the Esquimaux Curlew spends a few days in early autumn, while on its way southward. During their short stay in that State, they are met with on the high sandy hills near the sea-shore, where they feed on the grasshoppers and on several kinds of berries. On this food they become fat, so as to afford excellent eating, in consequence of which they have probably acquired the name of "Dough Bird," which they bear in that district, but which is also applied to several other birds. How this species manages to cross the whole extent of the United States without being seen after leaving Massachusetts, is to me very wonderful. On one occasion only have I ever had a glimpse of it. I was in company with my learned and generous friend JOHN BACHMAN of Charleston, on one of the islands on the coast of South Carolina, whither we had gone with the view of watching the Long-billed Curlews (*Numenius longirostris*). It was at the dawn of a fine day, when a dense flock of the northern Curlews passed to the southward, near enough to enable us to ascertain the species, but so swiftly, that in a few minutes they were quite out of sight.

On the 29th of July 1833, during a thick fog, the Esquimaux Curlews made their first appearance in Labrador, near the harbour of Bras d'Or. They evidently came from the north, and arrived in such dense flocks as to remind me of the Passenger Pigeons. The weather was extremely cold as well as foggy. For more than a week we had been look-

ing for them, as was every fisherman in the harbour, these birds being considered there, as indeed they are, great delicacies. The birds at length came, flock after flock, passed close round our vessel, and directed their course toward the sterile mountainous tracts in the neighbourhood; and as soon as the sun's rays had dispersed the fogs that hung over the land, our whole party went off in search of them.

I was not long in discovering that their stay on this coast was occasioned solely by the density of the mists and the heavy gales that already gave intimation of the approaching close of the summer; for whenever the weather cleared up a little, thousands of them set off and steered in a straight course across the broad Gulf of St Lawrence. On the contrary, when the wind was high, and the fogs thick, they flew swiftly and low over the rocky surface of the country, as if bewildered. Wherever there was a spot that seemed likely to afford a supply of food, there the Curlews abounded, and were easily approached. By the 12th of August, however, they had all left the country.

In Labrador they feed on what the fishermen call the Curlew berry, a small black fruit growing on a creeping shrub, not more than an inch or two in height, and so abundant, that patches of several acres covered the rocks here and there. When the birds were in search of these feeding-grounds, they flew in close masses, sometimes high, at other times low, but always with remarkable speed, and performing beautiful evolutions in the air. The appearance of man did not seem to intimidate them, for they would alight so near us, or pass over our heads at so short a distance, that we easily shot them. While on wing, they emitted an oft repeated soft whistling note, but the moment they alighted they became silent. They ran swiftly along, all in the same direction, picking up the berries in their way, and when pursued, would immediately squat in the manner of a snipe or partridge, sometimes even laying their neck and head quite flat on the ground, until you came within a short distance, when, at the single whistle of any one of the flock, they would all immediately scream and fly off, rambling about for a while, and not unfrequently re-alighting on the same spot. Now and then, however, their excursion would last a long time, they would rise high in the air, make towards the sea, and, as if aware of the unfavourable state of the weather for pursuing their southward course, would return.

They continued to arrive at Bras d'Or for several days, in flocks which seemed to me to increase in number. I saw no Hawks in their rear, and

I was the more astonished at this, that at that period the Pigeon Hawk and Petit Caporal Hawk were pretty abundant.

They rose from the ground by a single quick spring, in the manner of a snipe, when they would cut backward, forward, and all around, in a very curious manner, and would now and then pause in the air, like a Hawk, remaining stationary for a few moments with their head meeting the wind, when immediately afterwards they would all suddenly alight. In calm and fair weather, they were more shy than at other times. While on their passage across the Gulf, they flew high in close bodies, and with their usual speed, by no means in regular lines, nor in any order, but much in the manner of the Migratory Pigeon, now and then presenting a broad front, and again coming together so as to form a close body.

Those which we procured were extremely fat and juicy, especially the young birds, of which we ate a good many. Mr JONES, an old settler of Bras d'Or, and his son, shoot a great number every season, which they salt for winter food. They informed us that these birds pass over the same tract about the middle of May, on their way northward, and that they never found them breeding in their neighbourhood. Little difference could be observed at that season between the males and females, or between the old and young birds.

NUMENIUS BOREALIS, *Lath. Ind. Ornith.* vol. ii. p. 712.—*Ch. Bonaparte*, *Amer. Ornith.* vol. iv. p. 26. fig. 3.—*Synops. of Birds of the United States*, p. 314.—*Richardson and Swainson*, *Fauna Boreali Americana*, part ii. p. 378.
ESQUIMAUX CURLEW, NUMENIUS BOREALIS, *Nuttall, Manual*, vol. ii. p. 101.

Plate CCVIII. Adult Male. Fig. 1.

Bill much longer than the head, very slender, subcylindrical, compressed, slightly arched. Upper mandible with the dorsal line slightly arched, the sides, excepting at the base, nearly perpendicular, and marked with a narrow groove extending more than two-thirds of its length, edges rather obtuse. Nostrils basal, lateral, longitudinal, elliptical. Lower mandible with the dorsal line arched, the angle extremely narrow and extended to near the end, the sides convex, the edges rather obtuse, the tips obtuse, that of the upper mandible longer.

Head rather small, oblong, compressed. Neck rather long, slender. Body slender. Feet of moderate length, slender. Toes small; first very

small, second and fourth about equal, third considerably longer. Claws small, compressed, blunt, that of middle toe much longer, curved outwards, with a sharp dilated inner edge.

Plumage soft and blended, on the fore part of the head very short. Wings rather long, very acute, narrow, the first quill longest, the second a little shorter, the rest regularly and rapidly graduated; secondaries short, incurved, rounded, excepting some of the inner, which are greatly elongated and tapering. Tail short, nearly even, of twelve rounded feathers.

Bill brownish-black, the lower mandible flesh-coloured at the base. Iris dark brown. Feet greyish-blue, claws black. The upper part of the head is brownish-black, streaked with pale yellowish-brown, and having an indistinct central line of the latter. The back is also brownish-black, marked with numerous spots of light brownish-yellow, there being several along the margin of each feather. Wing-coverts and secondaries of a lighter brown, similarly spotted; alula, primary coverts and quills unspotted, the shafts of most of the latter pale brown, but of the outer white. Tail pale greyish-brown, with light deep brown bars, and tipped with brownish-white. Sides of the head, and the neck all round, pale yellowish-brown, striped with dark brown; breast and sides of the same tint, with longitudinal and transverse dark markings. Lower wing-coverts and lower tail-coverts similarly barred; axillar feathers regularly banded, and of a deeper tint. Abdomen without markings. Throat and a line over the eye nearly white.

Length to end of tail $14\frac{1}{2}$, to end of wings $14\frac{1}{4}$, to end of claws $16\frac{3}{4}$; wing from flexure $8\frac{1}{2}$, tail $3\frac{1}{4}$; extent of wings $27\frac{5}{8}$; bill along the back $2\frac{1}{2}$, along the edge $2\frac{1}{2}$; tarsus $1\frac{5}{8}$, middle toe $1\frac{1}{2}$, its claw $\frac{5}{8}$. Weight $\frac{1}{2}$ lb.

Adult Female. Plate CCVIII. Fig. 2.

The Female resembles the male, and is scarcely inferior in size.

WILSON'S PLOVER.

CHARADRIUS WILSONIUS, ORD.

PLATE CCIX. MALE AND FEMALE.

READER, imagine yourself standing motionless on some of the sandy shores between South Carolina and the extremity of Florida, waiting with impatience for the return of day ;—or, if you dislike the idea, imagine me there. The air is warm and pleasant, the smooth sea reflects the feeble glimmerings of the fading stars, the sound of living thing is not heard ; nature, universal nature, is at rest. And here am I, inhaling the grateful sea-air, with eyes intent on the dim distance. See the bright blaze that issues from the verge of the waters ! and now the sun himself appears, and all is life, or seems to be ; for as the influence of the Divinity is to the universe, so is that of the sun to the things of this world. Far away beyond that treacherous reef, floats a gallant bark, that seems slumbering on the bosom of the waters like a silvery sea-bird. Gentle breezes now creep over the ocean, and ruffle its surface into tiny wavelets. The ship glides along, the fishes leap with joy, and on my ear comes the well known note of the bird which bears the name of one whom every ornithologist must honour. Long have I known the bird myself, and yet desirous of knowing it better, I have returned to this beach many successive seasons for the purpose of observing its ways, examining its nest, marking the care with which it rears its young, and the attachment which it manifests to its mate. Well, let the scene vanish ! and let me present you with the results of my observations.

WILSON'S Plover ! I love the name because of the respect I bear towards him to whose memory the bird has been dedicated. How pleasing, I have thought, it would have been to me, to have met with him on such an excursion, and, after having procured a few of his own birds, to have listened to him as he would speak of a thousand interesting facts connected with his favourite science and my ever-pleasing pursuits. How delightful to have talked, among other things, of the probable use of the *double claws* which I have found attached to the toes of the species which goes by his name, and which are also seen in other groups of shore and sea birds. Perhaps he might have informed me why the claws of some birds are pectinated

on one toe and not on the rest, and why that toe itself is so cut. But alas ! WILSON was with me only a few times, and then *nothing* worthy of his attention was procured.

This interesting species, which always looks to me as if in form a miniature copy of the Black-bellied Plover, is a constant resident in the southern districts of the Union. There it breeds, and there too it spends the winter. Many individuals, no doubt, move farther south, but great numbers are at all times to be met with from Carolina to the mouths of the Mississippi, and in all these places I have found it the whole year round. Some go as far to the eastward as Long Island in the State of New York, where, however, they are considered as rarities; but beyond this, none, I believe, are seen along our eastern shores. This circumstance has seemed the more surprising to me, that its relative the Piping Plover proceeds as far as the Magdeleine Islands; and that the latter bird should also breed in the Carolinas a month earlier than WILSON'S Plover ever does, seems to me not less astonishing.

WILSON'S Plover begins to lay its eggs about the time when the young of the Piping Plover are running after their parents. Twenty or thirty yards from the uppermost beat of the waves, on the first of June, or some day not distant from it, the female may be seen scratching a small cavity in the shelly sand, in which she deposits four eggs, placing them carefully with the broad end outermost. The eggs, which measure an inch and a quarter by seven and a half eighths, are of a dull cream colour, sparingly sprinkled all over with dots of pale purple and spots of dark brown. The eggs vary somewhat in size, and in their ground colour, but less than those of many other species of the genus. The young follow their parents as soon as they are hatched, and the latter employ every artifice common to birds of this family, to entice their enemies to follow them and thus save their offspring.

The flight of this species is rapid, elegant, and protracted. While travelling from one sand-beach or island to another, they fly low over the land or water, emitting a fine clear soft note. Now and then, when after the breeding season they form into flocks of twenty or thirty, they perform various evolutions in the air, cutting backwards and forwards, as if inspecting the spot on which they wish to alight, and then suddenly descend, sometimes on the sea-beach, and sometimes on the more elevated sands at a little distance from it. They do not run so nimbly as the Piping Plovers, nor are they nearly so shy. I have in fact frequently walked

up so as to be within ten yards or so of them. They seldom mix with other species, and they shew a decided preference to solitary uninhabited spots.

Their food consists principally of small marine insects, minute shell-fish, and sandworms, with which they mix particles of sand. Towards autumn they become almost silent, and being then very plump, afford delicious eating. They feed fully as much by night as by day, and the large eyes of this as of other species of the genus, seem to fit them for nocturnal searchings.

The young birds assemble together, and spend the winter months apart from the old ones, which are easily recognised by their lighter tints. While in the Floridas, near St Augustine, in the months of December and January, I found this species much more abundant than any other; and there were few of the Keys that had a sandy beach, or a rocky shore, on which one or more pairs were not observed.

WILSON'S PLOVER, *CHARADRIUS WILSONIUS*, *Wils. Amer. Ornith.* vol. ix. p. 77. pl. 73. fig. 5.—*Nuttall, Manual*, vol. ii. p. 21.

CHARADRIUS WILSONIUS, *Ch. Bonaparte*, *Synops. of Birds of the United States*, p. 296.

Adult Female. Plate CCIX. Fig. 2.

Bill as long as the head, stout, straight, cylindrical, obtuse, and somewhat turgid at the tip. Upper mandible with the dorsal line straight until towards the end, when it is slightly arched and declinate, the sides convex, the edges sharp and slightly inflected. Nasal groove extending to about half the length of the bill; nostrils lateral, linear, direct, in the lower part of the bare membrane. Lower mandible with the angle rounded, the dorsal line convex and ascending, the back broad, the sides convex, the edges inflected.

Head large, a little compressed, the forehead prominent; eyes large. Neck short. Body rather full. Wings long. Legs rather long, slender; tibia bare a little above the joint; tarsus of ordinary length, somewhat compressed, covered with angular scales; toes small and slender, covered above with numerous small scutella, first toe wanting, fourth longer than second, third longest, the two outer connected at the base by a pretty large web; claws small, slightly arched, much compressed, obtuse.

Plumage soft and rather blended. Wings long, narrow, primaries nearly straight, narrow and tapering, the first longest, second a little

shorter, the rest rapidly graduated; outer secondaries very short, inner elongated so as to extend as far as the second primary. Tail of moderate length, straight, rounded, of twelve feathers.

Bill black. Edges of eyelids grey; iris reddish-brown. Feet light flesh-coloured; claws dusky. The general colour of the plumage above is light brownish-grey. Lower part of forehead and a broad streak over the eyes white; throat white, that colour extending narrow behind so as to form a collar, below which is another of the general tint of the back across the fore neck. The rest of the lower parts white. Quills and tail of a deeper greyish-brown, the shafts white, the two lateral tail-feathers whitish.

Length to end of tail $7\frac{1}{2}$ inches, to end of wings $7\frac{7}{8}$, to end of claws $8\frac{1}{8}$; extent of wings $14\frac{1}{4}$; wing from flexure 5; tail $2\frac{1}{4}$; bill along the back $1\frac{1}{2}$, along the edges 1; tarsus $1\frac{2}{3}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$.

Young Male in winter plumage. Plate CCIX. Fig. 1.

The Adult Male which is represented in Plate 284, is similar in colouring to the female as described above, but the lore is dusky, the white band on the forehead is surmounted by one of brownish black, and there is a half collar of the same colour across the neck in front.

THE LEAST BITTERN.

ARDEA EXILIS, GMEL.

PLATE CCK. MALE, FEMALE, AND YOUNG.

ONE morning while I was at the Cincinnati Museum in the State of Ohio, a woman came in holding in her apron one of this delicate species alive, which she said had fallen down the chimney of her house under night, and which, when she awoke at daybreak, was the first object she saw, it having perched on one of the bed posts. It was a young bird. I placed it on the table before me, and drew from it the figure on the left of my plate. It stood perfectly still for two hours, but on my touching it with a pencil, after my drawing was done, it flew off and alighted on the cornice of a window. Replacing it on the table, I took two books and laid them so as to leave before it a passage of an inch and a half, through which it walked with ease. Bringing the books nearer each other, so as to reduce the passage to one inch, I tried the Bittern again, and again it made its way between them without moving either. When dead, its body measured two inches and a quarter across, from which it is apparent that this species, as well as the Gallinules and Rails, is enabled to contract its breadth in an extraordinary degree.

While I was in Philadelphia, in September 1832, a gentleman presented me with a pair of adult birds of this species, alive and in perfect plumage. They had been caught in a meadow a few miles below the city, and I kept them alive several days, feeding them on small fish and thin stripes of pork. They were expert at seizing flies, and swallowed caterpillars, and other insects. My wife admired them much on account of their gentle deportment, for although on being tormented, they would spread their wings, ruffle their feathers, and draw back their head as if to strike, yet they suffered themselves to be touched by any one without pecking at his hand. It was amusing to see them continually attempting to escape through the windows, climbing with ease from the floor to the top of the curtain by means of their feet and claws. This feat they would repeat whenever they were taken down. The experiment of the books was tried with them, and succeeded as at Cincinnati. At the approach of night they became much more lively, walked about the room,

in a graceful manner with much agility, and generally kept close together. I had ample opportunities of studying their natural positions, and drew both of them in the attitudes exhibited in the plate. I would gladly have kept them longer; but as I was bound for the south, I had them killed for the purpose of preserving their skins.

This bird ranges over most part of the United States, but is nowhere to be found in tolerable abundance excepting about the mouths of the Mississippi and the Southern portions of the Floridas, especially the "Everglades." I have met with them to the eastward as far as New Brunswick, on our large lakes, and in the intermediate portions of the country, although I have seldom found more than one or two at a time. In the Floridas and Carolinas they have been known to breed in small communities of four or five pairs. One instance of this was observed by my friend Dr HORLBECK of Charleston, and Dr LEITNER, another friend of mine, found them quite abundant in certain portions of the Florida marshes.

Although the Least Bittern is not unfrequently started in salt marshes, it gives a decided preference to the borders of ponds, lakes or bayous of fresh water, and it is in secluded situations of this kind that it usually forms its nest. This is sometimes placed on the ground, amid the rankest grasses, but more frequently it is attached to the stems several inches above it. It is flat, composed of dried or rotten weeds, and in shape resembles that of the Louisiana Heron, although this latter employs nothing but sticks. The eggs are three or four, seldom more, of a dull yellowish-green, without spots, an inch and a quarter in length, almost equal at both ends.

When the young are yet quite small, their heads are covered with large tufts of reddish down, their bill is very short, and they sit on their rump with their legs extended on each side before their body, in the manner of young Herons. If disturbed when about two weeks old, they leave the nest and scramble through the grass with celerity, clinging to the blades with their sharp claws whenever this is necessary. At a later period they seem to await the coming of their parents with impatience; and if no noise is made, you may hear them calling continually in a low croaking voice for half an hour at a time. As soon as they are able to fly, they not unfrequently alight on the branches of trees to escape from their various enemies, such as minxes, and water snakes, the latter of which destroy a good number of them.

In two instances, I found the nests of the Least Bittern about three feet above the ground, in a thick cluster of *smilax* and other briary plants. In the first, two nests were placed in the same bush, within a few yards of each other. In the other instance there was only one nest of this bird, but several of the Boat-tailed Grackle, and one of the Green Heron, the occupants of all of which seemed to be on friendly terms. When startled from the nest, the old birds emit a few notes resembling the syllable *quā*, alight a few yards off, and watch all your movements. If you go towards them, you may sometimes take the female with the hand, but rarely the male, who generally flies off, or makes his way through the woods. Its ordinary cry, however, is a rough croak resembling that of the Great Blue Heron, but much weaker.

The flight of this bird is apparently weak by day, for then it seldom removes to a greater distance than a hundred yards at a time, and this, too, only when frightened in a moderate degree, for, if much alarmed, it falls again among the grass in the manner of the Rail; but in the dusk of the evening and morning I have seen it passing steadily along, at the height of fifty yards or more, with the neck retracted, and the legs stretched out behind, in the manner of the larger Herons. On such occasions it uttered, at short intervals, its peculiar cry, and continued its flight until out of sight. Several individuals were together, and I imagined them to be proceeding in search of breeding-grounds, or on a migratory expedition. When disturbed by day, they fly with extended neck and dangling legs, and are easily shot, as their course is generally direct and their flight slow. When walking, it shoots its head forward at every step, as if about to thrust its bill into some substance; and, if you attempt to lay hold of it when disabled, it is apt to inflict a painful wound.

The food of this bird consists of snails, slugs, tadpoles, or young frogs and water-lizards. In several instances, however, I have found small shrews and field-mice in their stomach. Although more nocturnal than diurnal, it moves a good deal about by day in search of food. About noon, being doubtless much fatigued, they are not unfrequently observed standing erect on one foot, and so soundly asleep as to be easily knocked down or even caught by the hand, if cautiously approached. This very remarkable habit of both our species of Bittern has brought upon them the charge of extreme *stupidity*, whence the name of *Butor* given to them by the Creoles of Louisiana. Whether or not this term be appropriate

to the case, I leave for you to determine ; but, my opinion is, that the animal truly deserving to be called stupid, yet remains to be discovered, and that the quality designated by that epithet occurs nowhere else than among the individuals of that species which so thoughtlessly applies the opprobrium.

ARDEA EXILIS, Ch. Bonaparte, *Synopsis of Birds of the United States*, p. 308.

LEAST BITTERN, *ARDEA EXILIS*, *Wils. Amer. Ornith.* vol. viii. p. 37. pl. 65. fig. 4.—

Nuttall, *Manual*, vol. II. p. 68.

Adult Male. Plate CCX. Fig. 1.

Bill longer than the head, slender, straight, tapering to a point, deeper than broad at the base, compressed towards the end. Upper mandible with its dorsal line almost straight, the ridge broad and rather rounded at the base, narrowed towards the end, the sides sloping, the edges very sharp, the tip acute. Nasal groove long ; nostrils basal, linear, longitudinal. Lower mandible with the angle very long and narrow, the dorsal line sloping upwards, the sides nearly flat, the edges sharp and inflected, the tip very acute.

Head oblong, much compressed. Neck long. Body very slender, much compressed. Feet long, rather robust ; tibia nearly entirely feathered ; tarsi covered anteriorly with broad oblique scutella ; toes scutellate above ; hind toe stout, second and fourth nearly equal, third much longer ; claws long, slender, arched, compressed, acute, that of middle toe serrated on the inner edge.

Eyelids and a large space before and beneath the eye, bare. Plumage soft, blended ; feathers of the hind head elongated, as are those of the neck generally, but especially of its lower part anteriorly. Wings short, broad, rounded, the second quill longest. Tail very short, rounded, of twelve feathers.

Bill dark olive-brown above, edges of upper mandible and bare frontal space yellow ; lower mandible pale yellow, inclining to flesh colour. Iris yellow. Feet dull greenish-yellow, claws brown. Upper part of the head, and the back, greenish-black and glossy ; sides of the head and hind part of neck, brownish-red or light chestnut ; wing-coverts pale greyish-brown, quills purplish-grey, tipped with yellowish-brown, the inner secondaries broadly margined with light chestnut, of which colour also are the secondary coverts and the edge of the wing at the flexure ;

the tail greenish-black. The throat and fore neck are reddish-white; the rest of the lower parts are of the same colour, excepting the fore part of the breast, which is blackish-brown, the feathers tipped with reddish-yellow, and the outer tibial feathers, which are reddish. In younger individuals the fore neck is more or less spotted with light brown, as was the case with that represented; but in old birds that part is unspotted.

Length to end of tail $13\frac{1}{2}$ inches, to end of claws 16; to end of wings $12\frac{1}{2}$; extent of wings $17\frac{1}{4}$; wing from flexure $5\frac{1}{4}$; tail $1\frac{1}{2}$; bill along the ridge $1\frac{3}{4}$, along the edge of lower mandible $2\frac{1}{2}$; tarsus $1\frac{1}{2}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$. Weight $4\frac{1}{4}$ oz.

Adult Female. Plate CCX. Fig. 2.

The Female is smaller, and differs considerably from the male in colour. The bare parts and iris are the same. The upper part of the head is reddish-brown, with a tinge of green; the back and scapulars are dark chestnut, and there is a line of yellowish-white along each side of the back, formed by the outer edges of the feathers. The rump is darker, the tail bluish-black as in the male. In other respects the colouring is similar, but the feathers of the fore neck and sides have each a narrow central line of dark brown.

Length to end of tail 12 inches; wing from flexure $4\frac{3}{4}$; tail $1\frac{3}{4}$; bill along the ridge $1\frac{3}{4}$, along the edge of lower mandible $2\frac{1}{2}$; tarsus $1\frac{1}{2}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$. Weight $3\frac{1}{2}$ oz.

Young in first plumage. Plate CCX. Fig. 3.

The young has the bill, eyes and feet, nearly of the same tints as the old; but the upper parts of the plumage are generally of a light brownish-red, variegated with brownish-yellow; the primary quills and tail black.

I have lately received a letter from my friend JOHN BACHMAN, stating that he had found this species breeding in considerable numbers on the plantation of JAMES H. SMITH, Esq. six miles east of Charleston, where he procured specimens both of the birds and of their eggs. Mr SMITH's sons had killed, in the course of a couple of weeks, not less than fourteen of these diminutive Herons. He describes the nest as flat, composed of pieces of dry rushes about a foot in length, and placed in a bunch of *Juncus effusus*. The eggs were nearly white with a very light tinge of blue.

THE EGGERS OF LABRADOR.

THE distinctive appellation of Eggers is given to certain persons who follow, principally or exclusively, the avocation of procuring the eggs of wild birds, with the view of disposing of them at some distant port. Their great object is to plunder every nest, whenever they can find it, no matter where, and at whatever risk. They are the pest of the feathered tribes, and their brutal propensity to destroy the poor creatures after they have robbed them, is abundantly gratified whenever an opportunity presents itself.

Much had been said to me respecting these destructive pirates before I visited the coast of Labrador, but I could not entirely credit all their cruelties until I had actually witnessed their proceedings, which were such as to inspire no small degree of horror. But you shall judge for yourself.

See yon shallop shyly sailing along ;—she sneaks like a thief, wishing as it were to shun the very light of heaven. Under the lea of every rocky isle some one at the tiller steers her course. Were his trade an honest one, he would not think of hiding his back behind the terrific rocks that seem to have been placed there as a resort to the myriads of birds that annually visit this desolate region of the earth, for the purpose of rearing their young, at a distance from all disturbers of their peace. How unlike the open, the bold, the honest mariner, whose face needs no mask, who scorns to skulk under any circumstances ! The vessel herself is a shabby thing :—her sails are patched with stolen pieces of better canvass, the owners of which have probably been stranded on some inhospitable coast, and have been plundered, perhaps murdered, by the wretches before us. Look at her again !—Her sides are neither painted, nor even pitched ; no—they are daubed over, plastered and patched with stripes of seal-skins, laid along the seams. Her deck has never been washed or sanded, her hold—for no cabin has she,—though at present empty, sends forth an odour pestilential as that of a charnel-house. The crew, eight in number, lie sleeping at the foot of their tottering mast, regardless of the repairs needed in every part of her rigging. But see ! she scuds along, and as I

suspect her crew to be bent on the commission of some evil deed, let us follow her to the first harbour.

There rides the filthy thing ! The afternoon is half over. Her crew have thrown their boat overboard ; they enter and seat themselves, each with a rusty gun. One of them skulls the skiff towards an island for a century past the breeding place of myriads of Guillemots, which are now to be laid under contribution. At the approach of the vile thieves, clouds of birds rise from the rock and fill the air around, wheeling and screaming over their enemies. Yet thousands remain in an erect posture, each covering its single egg, the hope of both parents. The reports of several muskets loaded with heavy shot are now heard, while several dead and wounded birds fall heavily on the rock or into the water. Instantly all the sitting birds rise and fly off affrighted to their companions above, and hover in dismay over their assassins, who walk forward exultingly, and with their shouts mingling oaths and execrations. Look at them ! See how they crush the chick within its shell, how they trample on every egg in their way with their huge and clumsy boots. Onward they go, and when they leave the isle, not an egg that they can find is left entire. The dead birds they collect and carry to their boat. Now they have regained their filthy shallop ; they strip the birds by a single jerk of their feathery apparel, while the flesh is yet warm, and throw them on some coals, where in a short time they are broiled. The rum is produced when the guillemots are fit for eating, and after stuffing themselves with this oily fare, and enjoying the pleasure of beastly intoxication, over they tumble on the deck of their crazed craft, where they pass the short hours of night in turbid slumber.

The sun now rises above the snow-clad summit of the eastern mount. " Sweet is the breath of morn " even in this desolate land. The gay Bunting erects his white crest, and gives utterance to the joy he feels in the presence of his brooding mate. The Willow Grouse on the rock crows his challenge aloud. Each floweret, chilled by the night air, expands its pure petals ; the gentle breeze shakes from the blades of grass the heavy dewdrops. On the Guillemot Isle the birds have again settled, and now renew their loves. Startled by the light of day, one of the Eggers springs on his feet and rouses his companions, who stare around them for a while, endeavouring to recollect their senses. Mark them, as with clumsy fingers they clear their drowsy eyes ! Slowly they rise on their feet. See

how the filthy lubbers stretch out their arms and yawn ; you shrink back, for verily " that throat might frighten a shark."

But the master, soon recollecting that so many eggs are worth a dollar or a crown, casts his eye towards the rock, marks the day in his memory, and gives orders to depart. The light breeze enables them to reach another harbour a few miles distant, one which, like the last, lies concealed from the ocean by some other rocky isle. Arrived there, they re-act the scene of yesterday, crushing every egg they can find. For a week each night is passed in drunkenness and brawls, until, having reached the last breeding place on the coast, they return, touch at every isle in succession, shoot as many birds as they need, collect the fresh eggs, and lay in a cargo. At every step each ruffian picks up an egg so beautiful that any man with a feeling heart would pause to consider the motive which could induce him to carry it off. But nothing of this sort occurs to the Egger, who gathers and gathers, until he has swept the rock bare. The dollars alone chink in his sordid mind, and he assiduously plies the trade which no man would ply who had the talents and industry to procure subsistence by honourable means.

With a bark nearly half filled with fresh eggs they proceed to the principal rock, that on which they first landed. But what is their surprise when they find others there helping themselves as industriously as they can ! In boiling rage they charge their guns, and ply their oars. Landing on the rock, they run up to the Eggers, who, like themselves, are desperadoes. The first question is a discharge of musketry, the answer another. Now, man to man, they fight like tigers. One is carried to his boat with a fractured skull, another limps with a shot in his leg, and a third feels how many of his teeth have been driven through the hole in his cheek. At last, however, the quarrel is settled ; the booty is to be equally divided ; and now see them all drinking together. Oaths and curses and filthy jokes are all that you hear ; but see, stuffed with food, and reeling with drink, down they drop one by one ; groans and execrations from the wounded mingle with the snorings of the heavy sleepers. There let the brutes lie.

Again it is dawn, but no one stirs. The sun is high ; one by one they open their heavy eyes, stretch their limbs, yawn, and raise themselves from the deck. But see, here comes a goodly company. A hundred honest fishermen, who for months past have fed on salt meat, have felt a

desire to procure some eggs. Gallantly their boats advance, impelled by the regular pull of their long oars. Each buoyant bark displays the flag of its nation. No weapons do they bring, nor any thing that can be used as such save their oars and fists. Cleanly clad in Sunday attire, they arrive at the desired spot, and at once prepare to ascend the rock. The Eggers, now numbering a dozen, all armed with guns and bludgeons, bid defiance to the fishermen. A few angry words pass between the parties. One of the Eggers, still under the influence of drink, pulls his trigger, and an unfortunate sailor is seen to reel in agony. Three loud cheers fill the air. All at once rush on the malefactors; a horrid fight ensues, the result of which is, that every Egger is left on the rock beaten and bruised. Too frequently the fishermen man their boats, row to the shallows, and break every egg in the hold.

The Eggers of Labrador not only rob the birds in this cruel manner, but also the fishermen, whenever they can find an opportunity; and the quarrels they excite are numberless. While we were on the coast, none of our party ever ventured on any of the islands which these wretches call their own, without being well provided with means of defence. On one occasion, when I was present, we found two Eggers at their work of destruction. I spoke to them respecting my visit, and offered them premiums for rare birds and some of their eggs; but although they made fair promises, not one of the gang ever came near the Ripley.

These people gather all the eider down they can find; yet so inconsiderate are they, that they kill every bird that comes in their way. The eggs of Gulls, Guillemots, and Ducks are searched for with care; and the Puffins and some other birds they massacre in vast numbers for the sake of their feathers. So constant and persevering are their depredations, that these species, which, according to the accounts of the few settlers I saw in the country, were exceedingly abundant twenty years ago, have abandoned their ancient breeding places, and removed much farther north in search of peaceful security. Scarcely, in fact, could I procure a young Guillemot before the Eggers had left the coast, nor was it until late in July that I succeeded, after the birds had laid three or four eggs each, instead of one, and when nature having been exhausted, and the season nearly spent, thousands of these birds left the country without having accomplished the purpose for which they had visited it. This war of extermination cannot last many years more. The Eggers themselves will be the first to repent the entire disappearance of the myriads of birds that

made the coast of Labrador their summer residence, and unless they follow the persecuted tribes to the northward, they must renounce their trade.

Had not the British Government long since passed strict laws against these ruthless and worthless vagabonds, and laid a heavy penalty on all of them that might be caught in the act of landing their cargoes in Newfoundland or Nova Scotia, I might——

THE GREAT BLUE HERON.

ARDEA HERODIAS, LINN.

PLATE CCXL. MALE.

THE State of Louisiana has always been my favourite portion of the Union, although Kentucky and some other States have divided my affections ; but as we are on the banks of the fair Ohio, let us pause a while, good Reader, and watch the Heron. In my estimation, few of our waders are more interesting than the birds of this family. Their contours and movements are always graceful, if not elegant. Look on the one that stands near the margin of the pure stream :—see his reflection dipping as it were into the smooth water, the bottom of which it might reach had it not to contend with the numerous boughs of those magnificent trees. How calm, how silent, how grand is the scene ! The tread of the tall bird himself no one hears, so carefully does he place his foot on the moist ground, cautiously suspending it for a while at each step of his progress. Now his golden eye glances over the surrounding objects, in surveying which he takes advantage of the full stretch of his graceful neck. Satisfied that no danger is near, he lays his head on his shoulders, allows the feathers of his breast to droop, and patiently awaits the approach of his finned prey. You might imagine what you see to be the statue of a bird, so motionless is it. But now, he moves ; he has taken a silent step, and with great care he advances ; slowly does he raise his head from his shoulders, and now, what a sudden start ! his formidable bill has transfixed a perch, which he beats to death on the ground. See with what difficulty he gulps it down his capacious throat ! and now his broad wings open, and away he slowly flies to another station, or perhaps to avoid his unwelcome observers.

The “ Blue Crane ” (by which name this species is generally known in the United States) is met with in every part of the Union. Although more abundant in the low lands of our Atlantic coast, it is not uncommon in the countries west of the Alleghany Mountains. I have found it in every State in which I have travelled, as well as in all our “ Territories.” It is well known from Louisiana to Maine, but seldom occurs farther east than Prince Edward’s Island in the Gulf of St Lawrence,

and not a Heron of any kind did I see or hear of in Newfoundland or Labrador. Westward, I believe, it reaches to the very bases of the Rocky Mountains. It is a hardy bird, and bears the extremes of temperature surprisingly, being in its tribe what the Passenger Pigeon is in the family of Doves. During the coldest part of winter the Blue Heron is observed in the State of Massachusetts and in Maine, spending its time in search of prey about the warm springs and ponds which occur there in certain districts. They are not rare in the Middle States, but more plentiful to the west and south of Pennsylvania, which perhaps arises from the incessant war waged against them.

Extremely suspicious and shy, this bird is ever on the look-out. Its sight is as acute as that of any falcon, and it can hear at a considerable distance, so that it is enabled to mark with precision the different objects it sees, and to judge with accuracy of the sounds which it hears. Unless under very favourable circumstances, it is almost hopeless to attempt to approach it. You may now and then surprise one feeding under the bank of a deep creek or bayou, or obtain a shot as he passes unawares over you on wing; but to walk up towards one would be a fruitless adventure. I have seen many so wary, that, on seeing a man at any distance within half a mile, they would take to wing; and the report of a gun forces one off his grounds from a distance at which you would think he could not be alarmed. When in close woods, however, and perched on a tree, they can be approached with a good chance of success.

The Blue Heron feeds at all hours of the day, as well as in the dark and dawn, and even under night, when the weather is clear, his appetite alone determining his actions in this respect; but I am certain that when disturbed during dark nights it feels bewildered, and alights as soon as possible. When passing from one part of the country to another at a distance, the case is different, and on such occasions they fly under night at a considerable height above the trees, continuing their movements in a regular manner.

The commencement of the breeding season varies, according to the latitude, from the beginning of March to the middle of June. In the Floridas it takes place about the first of these periods, in the Middle Districts about the 15th of May, and in Maine a month later. It is at the approach of this period only that these birds associate in pairs, they being generally quite solitary at all other times; nay, excepting during the breeding season, each individual seems to secure for itself a certain dis-

strict as a feeding ground, giving chase to every intruder of its own species. At such times they also repose singly, for the most part roosting on trees, although sometimes taking their station on the ground, in the midst of a wide marsh, so that they may be secure from the approach of man. This unsocial temper probably arises from the desire of securing a certain abundance of food, of which each individual in fact requires a large quantity.

The manners of this Heron are exceedingly interesting at the approach of the breeding season, when the males begin to look for partners. About sunrise you see a number arrive and alight either on the margin of a broad sand-bar or on a savannah. They come from different quarters, one after another, for several hours; and when you see forty or fifty before you, it is difficult for you to imagine that half the number could have resided in the same district. Yet in the Floridas I have seen hundreds thus collected in the course of a morning. They are now in their full beauty, and no young birds seem to be among them. The males walk about with an air of great dignity, bidding defiance to their rivals, and the females croak to invite the males to pay their addresses to them. The females utter their coaxing notes all at once, and as each male evinces an equal desire to please the object of his affection, he has to encounter the enmity of many an adversary, who, with little attention to politeness, opens his powerful bill, throws out his wings, and rushes with fury on his foe. Each attack is carefully guarded against, blows are exchanged for blows; one would think that a single well-aimed thrust might suffice to inflict death, but the strokes are parried with as much art as an expert swordsman would employ; and, although I have watched these birds for half an hour at a time as they fought on the ground, I never saw one killed on such an occasion; but I have often seen one felled and trampled upon, even after incubation had commenced. These combats over, the males and females leave the place in pairs. They are now mated for the season, at least I am inclined to think so, as I never saw them assemble twice on the same ground, and they become comparatively peaceable after pairing.

It is by no means a constant practice with this species to breed in communities, whether large or small; for although I have seen many such associations, I have also found many pairs breeding apart. Nor do they at all times make choice of the trees placed in the interior of a swamp, for I have found heronries in the pine-barrens of the Floridas, more than

ten miles from any marsh, pond, or river. I have also observed nests on the tops of the tallest trees, while others were only a few feet above the ground: some also I have seen on the ground itself, and many on cactuses. In the Carolinas, where Herons of all sorts are extremely abundant, perhaps as much so as in the lower parts of Louisiana or the Floridas, on account of the numerous reservoirs connected with the rice plantations, and the still more numerous ditches which intersect the rice-fields, all of which contain fish of various sorts, these birds find it easy to procure food in great abundance. There the Blue Herons breed in considerable numbers, and if the place they have chosen be over a swamp, few situations can be conceived more likely to ensure their safety, for one seldom ventures into those dismal retreats at the time when these birds breed, the effluvia being extremely injurious to health, besides the difficulties to be overcome in making one's way to them.

Imagine, if you can, an area of some hundred acres, overgrown with huge cypress trees, the trunks of which, rising to a height of perhaps fifty feet before they send off a branch, spring from the midst of the dark muddy waters. Their broad tops, placed close together with interlaced branches, seem intent on separating the heavens from the earth. Beneath their dark canopy scarcely a single sunbeam ever makes its way; the mire is covered with fallen logs, on which grow matted grasses and lichens, and the deeper parts with nymphææ and other aquatic plants. The Congo snake and water-moccasin glide before you as they seek to elude your sight, hundreds of turtles drop, as if shot, from the floating trunks of the fallen trees, from which also the sullen alligator plunges into the dismal pool. The air is pregnant with pestilence, but alive with mosquitoes and other insects. The croaking of the frogs, joined with the hoarse cries of the Anhingas and the screams of the Herons, forms fit music for such a scene. Standing knee-deep in the mire, you discharge your gun at one of the numerous birds that are breeding high over head, when immediately such a deafening noise arises, that, if you have a companion with you, it were quite useless to speak to him. The frightened birds cross each other confusedly in their flight; the young attempting to secure themselves, some of them lose their hold, and fall into the water with a splash; a shower of leaflets whirls downwards from the tree-tops, and you are glad to make your retreat from such a place. Should you wish to shoot Herons, you may stand, fire, and pick up your game as long as you please; you may obtain several species, too, for not only does the

Great Blue Heron breed there, but the White, and sometimes the Night Heron, as well as the Anhinga, and to such places they return year after year, unless they have been cruelly disturbed.

The nest of the Blue Heron, in whatever situation it may be placed, is large and flat, externally composed of dry sticks, and matted with weeds and mosses to a considerable thickness. When the trees are large and convenient, you may see several nests on the same tree. The full complement of eggs which these birds lay is three, and in no instance have I found more. Indeed, this is constantly the case with all the large species with which I am acquainted, from *Ardea cœrulea* to *Ardea occidentalis*; but the smaller species lay more as they diminish in size, the Louisiana Heron having frequently four, and the Green Heron five, and even sometimes six. Those of the Great Blue Heron are very small compared with the size of the bird, measuring only two and a half inches by one and seven-twelfths; they are of a dull bluish-white, without spots, rather rough, and of a regular oval form.

The male and the female sit alternately, receiving food from each other, their mutual affection being as great as it is towards their young, which they provide for so abundantly, that it is not uncommon to find the nest containing a quantity of fish and other food, some fresh, and some in various stages of putrefaction. As the young advance they are less frequently fed, although still as copiously supplied whenever opportunity offers; but now and then I have observed them, when the nests were low, standing on their haunches, with their legs spread widely before them, and calling for food in vain. The quantity which they require is now so great that all the exertions of the old birds appear at times to be insufficient to satisfy their voracious appetite; and they do not provide for themselves until fully able to fly, when their parents chase them off, and force them to shift as they can. They are generally in good condition when they leave the nest; but from want of experience they find it difficult to procure as much food as they have been accustomed to, and soon become poor. Young birds from the nest afford tolerable eating; but the flesh of the old birds is by no means to my taste, nor so good as some epicures would have us to believe, and I would at any time prefer that of a Crow or young Eagle.

The principal food of the Great Blue Heron is fish of all kinds; but it also devours frogs, lizards, snakes, and birds, as well as small quadrupeds, such as shrews, meadow-mice, and young rats, all of which I have

found in its stomach. Aquatic insects are equally welcome to it, and it is an expert flycatcher, striking at moths, butterflies, and libellulæ, whether on the wing or when alighted. It destroys a great number of young Marsh-Hens, Rails, and other birds ; but I never saw one catch a fiddler or a crab ; and the only seeds that I have found in its stomach were those of the great water-lily of the Southern States. It always strikes its prey through the body, and as near the head as possible. When the animal is strong and active, it kills it by beating it against the ground or a rock, after which it swallows it entire. While on the St John's River in East Florida, I shot one of these birds, and on opening it on board, found in its stomach a fine perch quite fresh, but of which the head had been cut off. The fish, when cooked, I found excellent, as did Lieutenant PIERCY and my assistant Mr WARD, but Mr LEEHMAN would not so much as taste it. When on a visit to my friend JOHN BULOW, I was informed by him, that although he had several times imported gold fishes from New York, with the view of breeding them in a pond, through which ran a fine streamlet, and which was surrounded by a wall, they all disappeared in a few days after they were let loose. Suspecting the Heron to be the depredator, I desired him to watch the place carefully with a gun ; which was done, and the result was, that he shot a superb specimen of the present species, in which was found the last gold fish that remained.

In the wild state it never, I believe, eats dead fish of any sort, or indeed any other food than that killed by itself. Now and then it strikes at a fish so large and strong as to endanger its own life ; and I once saw one on the Florida coast, that, after striking a fish, when standing in the water to the full length of its legs, was dragged along for several yards, now on the surface, and again beneath. When, after a severe struggle, the Heron disengaged itself, it appeared quite overcome, and stood still near the shore, his head turned from the sea, as if afraid to try another such experiment. The number of fishes, measuring five or six inches, which one of these birds devours in a day, is surprising : Some which I kept on board the Marion would swallow, in the space of half an hour, a bucketful of young mullets ; and when fed on the flesh of green turtles, they would eat several pounds at a meal. I have no doubt that, in favourable circumstances, one of them could devour several hundreds of small fishes in a day. A Heron that was caught alive on one of the Florida keys, near Key West, looked so emaciated when it came on board,

that I had it killed to discover the cause of its miserable condition. It was an adult female that had bred that spring; her belly was in a state of mortification, and on opening her, we found the head of a fish measuring several inches, which, in an undigested state, had lodged among the entrails of the poor bird. How long it had suffered could only be guessed, but this undoubtedly was the cause of the miserable state in which it was found.

I took a pair of young Herons of this species to Charleston. They were nearly able to fly when caught, and were standing erect a few yards from the nest, in which lay a putrid one that seemed to have been trampled to death by the rest. They offered little resistance, but grunted with a rough uncouth voice. I had them placed in a large coop, containing four individuals of the *Ardea occidentalis*, who immediately attacked the new-comers in the most violent manner, so that I was obliged to turn them loose on the deck. I had frequently observed the great antipathy evinced by the majestic white species towards the blue in the wild state, but was surprised to find it equally strong in young birds which had never seen one, and were at that period smaller than the others. All my endeavours to remove their dislike were unavailing, for when placed in a large yard, the White Herons attacked the Blue, and kept them completely under. The latter became much tamer, and were more attached to each other. Whenever a piece of turtle was thrown to them, it was dexterously caught in the air and gobbled up in an instant, and as they became more familiar, they ate bits of biscuit, cheese, and even rhinds of bacon.

When wounded, the Great Blue Heron immediately prepares for defence, and woe to the man or dog who incautiously comes within reach of its powerful bill, for that instant he is sure to receive a severe wound, and the risk is so much the greater that birds of this species commonly aim at the eye. If beaten with a pole or long stick, they throw themselves on their back, cry aloud, and strike with their bill and claws with great force. I have shot some on trees, which, although quite dead, clung by their claws for a considerable time before they fell. I have also seen the Blue Heron giving chase to a Fish Hawk, whilst the latter was pursuing its way through the air towards a place where it could feed on the fish which it bore in its talons. The Heron soon overtook the Hawk, and at the very first lounge made by it, the latter dropped its quarry, when the

Heron sailed slowly towards the ground, where it no doubt found the fish. On one occasion of this kind, the Hawk dropped the fish in the water, when the Heron, as if vexed that it was lost to him, continued to harass the Hawk, and forced it into the woods.

The flight of the Great Blue Heron is even, powerful, and capable of being protracted to a great distance. On rising from the ground or on leaving its perch, it goes off in silence with extended neck and dangling legs, for eight or ten yards, after which it draws back its neck, extends its feet in a straight line behind, and with easy and measured flappings continues its course, at times flying low over the marshes, and again, as if suspecting danger, at a considerable height over the land or the forest. It removes from one pond or creek, or even from one marsh to another, in a direct manner, deviating only on apprehending danger. When about to alight, it now and then sails in a circular direction, and when near the spot it extends its legs, and keeps its wings stretched out until it has effected a footing. The same method is employed when it alights on a tree, where, however, it does not appear to be as much at its ease as on the ground. When suddenly surprised by an enemy, it utters several loud discordant notes, and mutes the moment it flies off.

This species takes three years in attaining maturity, and even after that period it still increases in size and weight. When just hatched they have a very uncouth appearance, the legs and neck being very long, as well as the bill. By the end of a-week the head and neck are sparingly covered with long tufts of silky down, of a dark grey colour, and the body exhibits young feathers, the quills large with soft blue sheaths. The tibio-tarsal joints appear monstrous, and at this period the bones of the leg are so soft, that one may bend them to a considerable extent without breaking them. At the end of four weeks, the body and wings are well covered with feathers of a dark slate colour, broadly margined with ferruginous, the latter colour shewing plainly on the thighs and the flexure of the wing; the bill has grown wonderfully, the legs would not now easily break, and the birds are able to stand erect on the nest or on the objects near it. They are now seldom fed oftener than once a-day, as if their parents were intent on teaching them that abstinence without which it would often be difficult for them to subsist in their after life. At the age of six or seven weeks they fly off, and at once go in search of food, each by itself.

In the following spring, at which time they have grown much, the elongated feathers of the breast and shoulders are seen, the males shew the commencement of the pendent crest, and the top of the head has become white. None breed at this age, in so far as I have been able to observe. The second spring, they have a handsome appearance, the upper parts have become light, the black and white marks are much purer, and some have the crest three or four inches in length. Some breed at this age. The third spring, the Great Blue Heron is as represented in the plate.

The males are somewhat larger than the females, but there is very little difference between the sexes in external appearance. This species moults in the Southern States about the beginning of May, or as soon as the young are hatched, and one month after the pendent crest is dropped, and much of the beauty of the bird is gone for the season. The weight of a full grown Heron of this kind, when it is in good condition, is about eight pounds; but this varies very much according to circumstances, and I have found some having all the appearance of old birds that did not exceed six pounds. The stomach consists of a long bag, thinly covered by a muscular coat, and is capable of containing several fishes at a time. The intestine is not thicker than the quill of a swan, and measures from eight and a half to nine feet in length.

ARDEA HERODIAS, Linn. Syst. Nat. vol. i. p. 237.—*Lath.* Ind. Ornith. vol. ii. p. 692.

—*Ch. Bonaparte*, Synops. p. 304.

GREAT HERON, *ARDEA HERODIAS*, *Wils.* Amer. Ornith. vol. vii. p. 106. pl. 61.

Fig. 1.—*Nuttall*, Manual, vol. ii. p. 42.

Adult Male in spring. Plate CCXI.

Bill much longer than the head, straight, compressed, tapering to a point, the mandibles nearly equal; upper mandible with the dorsal line nearly straight, the ridge broadly convex at the base, narrowed towards the end, a groove from the base to near the tip, beneath which the sides are convex, the edges extremely thin and sharp, towards the end broken into irregular serratures, the tip acute. Lower mandible with the angle extremely narrow and elongated, the dorsal line beyond it ascending, and slightly curved, the ridge convex, the sides flattish and ascending, the edges as in the upper, the tip acuminate. Nostrils basal, linear, longitudinal, with a membrane above and behind.

THE COMMON AMERICAN GULL.

LARUS ZONORHYNCHUS, RICHARDSON.

PLATE CCXII. ADULT MALE, AND YOUNG IN WINTER.

No country can afford greater facilities for the migration of water-birds than the United States of America. Even the Gulls are enabled to traverse their whole extent from north to south, and in the contrary direction, without suffering from want of food or of proper resting places. The Gull that has been bred in Labrador, or still farther north, can reach the Gulf of Mexico without being seriously incommoded by the storms that now and then rage along the Atlantic coast. The broad waters of the St Lawrence leads it to our great lakes, from which hundreds of streams conduct it to the head waters of the Ohio or the Mississippi, by following the windings of which it at length arrives in the warm regions of the Mexican Gulf, on whose waters the traveller can spend the winter. That these advantages are embraced by many species of Gull, there can be no doubt; and should you, as I have done, repeatedly visit our broad lakes, or the great rivers just mentioned, you would find there, at particular seasons, not only this species, but several others, as well as various kinds of Terns, but none of the genus *Lestris*. Lake Erie supplies with food the *Larus marinus*, *L. argentatus*, *L. atricilla*, and some others, as well as the Great, the Arctic, the Roseate, and the Black Terns, all of which pass at times over to the Ohio, and from thence to the ocean. During these inland movements, the birds seem to be peculiarly attracted by certain places, at which they remain for a while. Thus, at the Falls of the Ohio, some species remain for weeks, and wherever much shipping occurs on that river or the Mississippi, Gulls are sure to be seen gleaning the garbage that has been thrown overboard, or seizing such fishes as rise incautiously to the surface of the water. In the months of September and October, Gulls and Terns might almost be said to abound on our great streams, and many return thither during the spring months on their way northward. Nay, to some species of Tern, the beautiful sand-bars and rocky beaches that occur here and there, are so attractive as to induce a few to remain and breed there. This is especially the case with the Black Terns, some of which rear their young by the rapids of

the Ohio below Louisville, amidst the roaring sounds of which may be heard their shrill and continued cries.

You must not suppose, however, that all the Gulls which migrate in that country take the same route; for thousands follow the sinuosities of our Atlantic coast, some of them perhaps proceeding as far south in that direction as those which follow our rivers. My opinion is, that the feebler individuals of the different species follow the inland route, while the older and more hardy birds keep along the shores of the ocean. The examination of numerous specimens on both of these extensive tracks has almost rendered this a matter of certainty, yet I should be much pleased to find this opinion corroborated by the observations of any other student of nature.

While on the coast of Florida, in the winter of 1832-33, I every day saw Gulls of many species, but among them all were no adult birds, with the exception of the Black-headed Gull of WILSON, which was very abundant. This greatly tended to strengthen my opinion, that the young gulls are of more delicate constitution than their parents, which are better enabled to stand the rigours of the winter in the Middle States, where they are found equally abundant at that season. For similar reasons, I also feel assured that the oldest birds are those which go farthest north to breed, and that the older and stronger individuals are larger, with more purely tinted plumage, and with the colours of their legs, feet and bills, as well as of the circle around the eye, more vivid, than those which, although found breeding, yet have not acquired their full maturity. In consequence of these circumstances, some species have been described as forming several, and the great difference between the plumage of the young and the old birds has led to similar errors.

Our Common Gull is seldom seen in the adult plumage of winter beyond the shores of Maryland southward, or in full summer plumage beyond the Bay of New York, and this rarely after the middle of April, as at that period they gather into flocks, and remove farther north to breed. The places to which this species resorts for that purpose, and which I have visited, are several islands between Boston and Eastport, another close to Grand Manan at the entrance of the Bay of Fundy, the great Gannet Rock of the Gulf of St Lawrence, and certain rocky isles in the deep bays on the coast of Labrador.

This species, although one of those most abundant on our coast, is so well acquainted with the artifices of man, that it keeps more than others

beyond the reach of the gun. While in our harbours or rivers it sails at a moderate height, sometimes mingling with the Silvery Gull, or even with the Great Black-backed. Its movements are graceful and easy, and it floats as it were in the air, whether proceeding in a direct line, or in irregular curves, when, suddenly checking its speed, it partially closes its wings, and descends with rapidity in a spiral manner. As it approaches the water, it allows its legs to hang, opens its bill, and while seizing its food, raises its wings erect and flaps them quickly to support its body. Now with loaded bill it sweeps off to some distance, alights, and devours its prey.

When in pursuit of a shoal of small fish, it assembles in flocks, keeps up a constant yelping noise, dips every instant among the fry, and continues to feed until so gorged as to be unable to fly. Alighting in groups, they float with great buoyancy, and it is pleasant to see them rising and falling alternately on the waves of a moderately agitated sea, the snowy whiteness of their under parts contrasting with the deep green water, and their elongated wings extending beyond the tail, giving the appearance of lightness and agility to their form.

The flight of this species is light and long sustained, and the circumstance of birds of this genus being able to find food almost anywhere, induces them at times to proceed far out to sea; and I have now and then been gratified by the sudden appearance of several birds of the present species to the lee of the ship, on whose deck I was with impatience watching for the sight of land. The winged pilgrims would no sooner come up than they also would express their pleasure by their cries, especially when they received from the passengers bits of bread or such garbage as might be at hand. Once fed, they would fly about us the whole day, and sometimes would be seen the next; and then perhaps all at once, as if made aware of the existence of land in a particular direction, they would fly off, and we would see no more of them.

When spring has fairly commenced, our Common Gulls assemble in parties of hundreds, and alight on mud flats or sandy beaches, in our eastern estuaries and bays. For a while they regularly resort to these places, which to the Gulls are what the scratching or tooting grounds are to the Pinnated Grouse. The male Gulls, however, although somewhat pugnacious, are not very inveterate in their quarrels, making up by clamour for the deficiency of prowess in their tournaments. The males bow to the females with swollen throats, and walk round them with many odd

gesticulations. As soon as the birds are paired, they give up their animosities, and for the rest of the season live together on the best terms. After a few weeks spent in these preparatory pleasures, the flocks take to wing, and betake themselves to their breeding places.

On an island within a few miles of Eastport in Maine, I found these birds breeding in great numbers in the beginning of May. Their nests were there placed amid the scanty tufts of grass. On the Gannet Rock, early in June, they were breeding on the shelves towards the summit, along with the Guillemots, while the Kittiwakes had secured their nests far below. The different species kept apart, but yet exhibited no antipathy towards each other. On the 18th of July, we discovered a low rocky island at the bottom of a bay ten miles from the open sea, opposite the harbour of Little Macatina, on the coast of Labrador, where we found upwards of two hundred nests, all containing eggs with the chicks more or less advanced. The number of eggs in each nest was three or four, more generally three. They resembled those of the Great Black-backed Gull in form and colour, but were much smaller, measuring two inches and three quarters in length, by one and five and a half eighths in their greatest diameter. There was considerable diversity both in the tint of their ground colour, and in the number and size of the spots on them, as is the case with the eggs of most water birds. In general, however, they were of a dull dark cream-colour, thickly blotched, sprinkled and touched with different shades of purple, umber, and black. When fresh, these eggs are delicious food, as I have had abundant occasion to know. The nests were in this place all situated on the bare rock, but in all other respects resembled those found among the grass or on more elevated rocks; they were formed of seaweeds, well constructed, about six inches across within, and twelve in their greatest diameter. Some of the nests were much thicker and larger than others; many were placed within the distance of a foot from each other; and the whole place was covered with feathers and dung, which emitted a very disagreeable stench, proving to us that it was annually resorted to by these birds. To our surprise the birds were very shy. Among those killed by us were some having all the appearance of mature age, such as I have mentioned above. The number of individuals among them having the black ring on the bill was much greater than among those found near Grand Manan; some, however, were without this ring, and on others it was but partially marked. Some had no white on the tips of the

primaries, and differences were also observable in the length of the tarsus and toes; but all had the same voice, and were actually of the same species. We also found considerable differences in their size and weight, even in individuals of the same sex, some weighing one pound, others four ounces more, and some so much as one pound ten ounces. The males, at an average, were larger than the females. Not a bird of any other species was found there, or on the grassy islands.

Whatever opinion may be held as to the synonyms of this Gull, I am perfectly assured of the above mentioned variations in the colour, size, and markings of the younger and older birds. I am equally sure that no individuals acquire the full beauty of their plumage before the third spring. The young are at first of a dull greenish-yellow, spotted with dark brown on the head and rump. In a very few days they leave the nest, ramble about in its vicinity, waiting the arrival of their parents with food, and conceal themselves under stones or in crevices at the appearance of danger. When a few weeks old, they do not hesitate, on being pursued, to betake themselves to the water, where they swim with great lightness. When about the size of pigeons, they assume a brownish colour, each feather being broadly banded or tipped with light ferruginous and grey. At this season, the fishermen of Labrador and Newfoundland kill them in great numbers, and pack them in salt for winter use. I was much surprised one morning while at Labrador, to see one of the barges of the *Gulnare* come alongside of the *Ripley* after a long cruise, when officers and men were glad to have a good mess of these young Gulls in the bow of their boat, they having run short of provisions.

LARUS ZONORHYNCHUS, Swains. and Richards. Fauna Bor. Amer. part ii. p. 421.

RING-BILLED MEW-GULL, *LARUS ZONORHYNCHUS*, Nuttall, Manual, vol. ii. p. 300.

Adult Male in summer plumage. Plate CCXII. Fig. 1.

Bill shorter than the head, robust, nearly straight, compressed. Upper mandible with the dorsal line nearly straight at the base, arched and declinate towards the end, the ridge convex, the sides slightly convex, the edges sharp inflected, arched, the tip rather obtuse. Nasal groove rather long and narrow; nostrils in its fore part, lateral, longitudinal, linear, wider anteriorly, open, and pervious. Lower mandible with a prominence at the end of the angle, which is long and narrow, the dorsal

line then nearly straight and ascending, the sides convex, the edges sharp and inflected.

Head rather large. Neck of moderate length. Body rather full. Wings long. Feet of moderate length, rather slender; tibia bare below; tarsus somewhat compressed, covered before and behind with numerous broad scutella, the sides reticulated; hind toe very small and elevated, the fore toes rather long and slender, the fourth longer than the second, the third longest, all scutellate above, and connected by reticulated entire membranes, the lateral toes margined externally with a narrow membrane. Claws small, compressed, slightly arched, rather obtuse.

The plumage in general is close, elastic, very soft and blended, on the back rather compact. Wings very long, rather broad, acute, the first quill longest, the other primaries rapidly graduated; secondaries broad and rounded, the inner elongated and narrow. Tail of moderate length, even, of twelve rounded feathers.

Bill marked opposite the angle with a broad transverse band of brownish-black, between which and the base it is light greenish-yellow, the tips orange-yellow. Edges of eyelids greenish-yellow; iris bright yellow. Feet greenish-yellow, the webs tinged with orange; claws black. The general colour of the plumage is pure white, excepting the back and wings, which are light pearl-grey. The first six quills are black towards their extremities, the first and second being almost entirely so, the sixth with only a small spot. The tips of these feathers are white, that of the first having merely a narrow margin of that colour, which gradually enlarges on the rest, the first moreover has near the end a long patch of white, the second a smaller one on the inner web. The proportional size of the white marks on the outer primaries varies in individuals. The other quills and secondaries are all white at the ends.

Length to end of tail 20 inches, to end of wings $22\frac{1}{4}$, to end of claws $20\frac{1}{2}$; extent of wings 48; wing from flexure $15\frac{1}{2}$, tail 6; bill along the back $1\frac{5}{8}$, along the edge $2\frac{5}{8}$, depth at the base $1\frac{1}{8}$, depth at the prominence $\frac{1}{2}$; bare part of the tibia $\frac{3}{4}$, tarsus 2; middle toe $1\frac{5}{8}$, its claw $\frac{2}{8}$; hind toe $\frac{2}{8}$, its claw $\frac{1}{8}$. Weight $1\frac{1}{2}$ lb.

Young bird, after first moult, shot on 26th November. Plate CCXII. Fig. 2.

Bill black, base of lower mandible and edges of upper towards the base, livid flesh-colour. Edges of eyelids livid blue; iris hazel. Feet

purplish-grey ; claws brownish-black. The general colour of the plumage is dull white, mottled with greyish-brown beneath, on the back with large brownish-black spots, the dark markings being central. Anterior to the eye is a crescent of greyish-black. The outer primary quills are black, the two first without white at the ends, the rest margined round the ends with that colour. The abdominal and tibial feathers are white; the lower and upper tail-coverts white, with brown spots.

Length to end of tail $18\frac{3}{4}$, to end of wings $20\frac{1}{2}$, extent of wings $44\frac{1}{2}$; tarsus 2, middle toe $1\frac{5}{8}$, its claws $\frac{2}{8}$. Weight 1 lb. 3 ounces.

On a rocky island on the coast of Labrador, where this bird was breeding in great numbers, a comparatively small number of individuals only had the bill marked with the black ring, the others, although precisely similar in other respects, wanted that mark. This bird although in many respects precisely similar to that which is usually named *Larus canus* in Europe, differs greatly in the size of the bill, which even in young birds is much deeper than in the oldest individuals of that species.

THE PUFFIN.

MORMON ARCTICUS, ILLIGER.

PLATE CCXIII. MALE AND FEMALE.

THE Sea Parrot, as this bird is usually called on the eastern coasts of the United States, as well as by the fishermen of Newfoundland and Labrador, sometimes proceeds as far south as the entrance of the River Savannah in Georgia, where I saw a good number in the winter of 1831-32. It is by no means, however, common with this species to extend its southward migrations so far, and I suspect it does so only in very severe weather. It is never plentiful off Long Island, but becomes more abundant the farther you proceed eastward, until you reach the entrance to the Bay of Fundy, where it is quite common, and on the Islands of which many breed, although not one perhaps now for a hundred that bred there twenty years ago. Those which proceed farther north leave the United States about the middle of April, and move along the coast, none ever crossing over the land to any extent. On my voyage to Labrador I observed Puffins every day; but although we reached that country in the early part of June, none had then begun to breed. As we approached the shores of that inhospitable land, we every now and then saw them around the vessel, now floating on the swelling wave, now disappearing under the bow, diving with the swiftness of thought, and sometimes rising on wing and flying swiftly, but low, over the sea. The nearer we approached the coast the more abundant did we find the Puffins, and sometimes they were so numerous as actually to cover the water to the extent of half an acre or more. At first we paid little attention to them, but as soon as I became aware that they had begun to breed, I commenced an investigation, of which I now proceed to lay before you the result.

The first breeding place which I and my party visited was a small island, a few acres in extent, and pleasant to the eye, on account of the thick growth of green grass with which it was covered. The shores were exceedingly rugged, the sea ran high, and it required all the good management of our captain to effect a safe landing, which, however, was at length accomplished at a propitious moment, when, borne on the summit

of a great wave, we reached the first rocks, leaped out in an instant, and held our boat, while the angry waters rolled back and left it on the land. After securing the boat, we reached with a few steps the green sward, and directly before us found abundance of Puffins. Some already alarmed flew past us with the speed of an arrow, others stood erect at the entrance of their burrows, while some more timid withdrew within their holes as we advanced towards them. In the course of half an hour we obtained a good number. The poor things seemed not at all aware of the effect of guns, for they would fly straight towards us as often as in any other direction; but after a while they became more knowing, and avoided us with more care. We procured some eggs, and as no young ones were yet to be found, we went off satisfied. The soil was so light, and so easily dug, that many of the burrows extended to the depth of five or six feet, although not more than a few inches below the surface, and some of the poor birds underwent a temporary imprisonment in consequence of the ground giving way under our weight. The whole island was perforated like a rabbit-warren, and every hole had its entrance placed due south, a circumstance which allowed the birds to emerge in our sight almost all at once, presenting a spectacle highly gratifying to us all. Our visit to this island took place on the 28th of June 1833.

On the 12th of August, the day after my son procured the two Jer-falcons mentioned in the second volume of this work, our Captain, my friends GEORGE SHATTUCK and WILLIAM INGALLS, with four sailors, and another boat in company, went on a visit to "Perroket Island," distant about two miles from the harbour of Bras d'Or. The place is known to all the cod-fishers, and is celebrated for the number of Puffins that annually breed there. As we rowed towards it, although we found the water literally covered with thousands of these birds, the number that flew over and around the green island seemed much greater, insomuch that one might have imagined half the Puffins in the world had assembled there. This far-famed isle is of considerable extent, its shores are guarded by numberless blocks of rock, and within a few yards of it the water is several fathoms in depth. The ground rises in the form of an amphitheatre to the height of about seventy feet, the greatest length being from north to south, and its southern extremity fronting the Streight of Belleisle. For every burrow in the island previously visited by us there seemed to be a hundred here, on every crag or stone stood a Puffin, at the entrance of each hole another, and yet the sea was covered and the air filled by them. I had two double-

barrelled guns and two sailors to assist me; and I shot for one hour by my watch, always firing at a single bird on wing. How many Puffins I killed in that time I take the liberty of leaving you to guess.

The burrows were all inhabited by young birds, of different ages and sizes, and clouds of Puffins flew over our heads, each individual holding a "lint" by the head. This fish, which measures four or five inches in length, and is of a very slender form, with a beautiful silvery hue, existed in vast shoals in the deep water around the island. The speed with which the birds flew made the fish incline by the side of their neck. While flying the Puffins emitted a loud croaking noise, but they never dropped the fish, and many of them, when brought down by a shot, still held their prey fast. I observed with concern the extraordinary affection manifested by these birds towards each other; for whenever one fell dead or wounded on the water, its mate or a stranger immediately alighted by its side, swam round it, pushed it with its bill as if to urge it to fly or dive, and seldom would leave it until an oar was raised to knock it on the head, when at last, aware of the danger, it would plunge below in an instant. Those which fell wounded immediately ran with speed to some hole, and dived into it, on which no further effort was made to secure them. Those which happened to be caught alive in the hand bit most severely, and scratched with their claws at such a rate that we were glad to let them escape. The burrows here communicated in various ways with each other, so that the whole island was perforated as if by a multitude of subterranean labyrinths, over which one could not run without the risk of falling at almost every step. The voices of the young sounded beneath our feet like voices from the grave, and the stench was extremely disagreeable, so that as soon as our boats were filled with birds we were glad to get away.

During the whole of our visit, the birds never left the place, but constantly attended to their avocations. Here one would rise from beneath our feet, there, within a few yards of us, another would alight with a fish, and dive into its burrow, or feed the young that stood waiting at the entrance. The young birds were far from being friendly towards each other, and those which we carried with us kept continually fighting so long as we kept them alive. They used their yet extremely small and slender bills with great courage and pertinacity, and their cries resembled the wailings of young whelps. The smaller individuals were fed by the parents by regurgitation, or received little pieces of fish which were placed

in their mouths; the larger picked up the fish that were dropped before them; but almost all of them seemed to crawl to the entrance of the holes for the purpose of being fed. In all the burrows that communicated with others, a round place was scooped out on one side of the avenue, in the form of an oven; while in those which were single, this oven-like place was found at the end, and was larger than the corridor. All the passages were flattish above, and rounded beneath, as well as on the sides. In many instances we found two birds sitting each on its egg in the same hole.

The Puffin never lays more than one egg, unless the first may have been destroyed or taken away; nor does it raise more than a single young one in the season. The time of incubation is probably from twenty-five to twenty-eight days, although I have not been able to ascertain the precise period. Both birds work in digging the hole, using their bills and feet; they also sit alternately on their egg, although the female engages more industriously in this occupation, while the male labours harder at the burrow. The egg is pure white when first deposited, but soon becomes soiled by the earth, as no nest is formed for its reception. It generally measures two and a half inches by one and three-fourths, but varies in size according to the age of the bird, as well as in shape, some being considerably more rounded at the smaller end than others. When boiled, the white is of a livid-blue colour. The captain and myself were the only persons of our party who tried to eat some. The eggs are certainly very bad, and are never collected by "The Eggers." The flesh of the birds is very dark, tough, and so fishy, as to be eatable only in cases of great want. Two Italians who had come to Labrador to purchase cod-fish, and were short of provisions, fed upon Puffins daily, to the great amusement of our party. The fishermen at times, when bait is scarce along the coast, destroy a great number of these birds, which they skin like rabbits, and then cut the flesh into slices.

The flight of the Puffin is firm, generally direct, now and then pretty well sustained. It is able to rise at once from the water or the land, although at times it runs on both before taking to wing. This depends much on necessity, for if pushed it flies at once from the ground, or plunges under the surface of the water. There they swim, with the wings partially opened, at a small depth, passing along in the manner of Divers; and by this means they catch their prey; but at other times they dive to the bottom, many fathoms deep, for shell-fish and other objects.

During the love season, the males chase each other in the air, on the water, or beneath its surface, with so much quickness, as to resemble the ricochets of a cannon-ball. Having kept several for about a week, I threw them overboard in the harbour where we were at anchor, and where the water was beautifully clear. On leaving my gloved hand, they plunged through the air, entered the water, and swam off, assisting themselves by their wings to the distance of from fifty to an hundred yards. On coming up, they washed their plumage for a long time, and then dived in search of food. While on board, they ran about from the dark towards the light, keeping themselves erect, and moving with great briskness, until at times close to my feet, when they would watch my motions like hawks, and if I happened to look towards them, would instantly make for some hiding-place. They fed freely and were agreeable pets, only that they emitted an unpleasant grunting noise, and ran about incessantly during the night, when each footstep could be counted. When on rocky shores, or islands with large stones, I observed that the Puffins often flew from one crag or stone to another, alighting with ease, and then standing erect.

The young, while yet covered with down, are black, with a white patch on the belly. Their bills do not acquire much of the form which they ultimately have for several weeks; nor do they assume their perfect shape for years. I have examined many hundred individuals, among which I have found great differences in the size and form of the bill. In fact, the existence of this diversity has induced many persons to think that we have several species of Puffin on our coasts; but, after having examined many specimens in Europe, I am decidedly of opinion that this species is the same that occurs in both continents, and that we have only one more at all common on our eastern coasts. The sexes differ in no perceptible degree, only that the males are somewhat larger. When two years old they may be considered of their full size, although the bill continues to grow and acquires furrows, until it becomes as you see it in the Plate.

ALCA ARCTICA, *Linn. Syst. Nat.* vol. i. p. 211.—*Lath. Ind. Ornith.* vol. ii. p. 792.

MORMON ARCTICUS, *Ch. Bonaparte*, *Synopsis of Birds of the United States*, p. 430.

PUFFIN, OR *COULTERNEE*, *Nuttall*, *Manual*, vol. ii. p. 542.

Adult Male in summer. Plate CCKIII. Fig. 1.

Bill about the length of the head, nearly as high as long, exceedingly

compressed, at the base as high as the head, obliquely furrowed on the sides. Upper mandible with a horny rim along the basal margin, its dorsal line curved from the base, the ridge very narrow but rounded, the sides rapidly sloped, and marked with three curved oblique grooves, the edges obtuse, their outline nearly straight, the tip deflected, very narrow but obtuse. Between the basal rim and the first groove is a triangular flat space analogous to the nasal groove, in the lower part of which, close to the edge of the bill, is the linear direct nostril. Lower mandible with the angle very narrow, and so placed that the base of the bill is inflected beyond the perpendicular, the dorsal line a little convex at first, towards the end straight, the ridge narrow, broader about the middle, the sides nearly flat, grooved and ridged as in the upper, the edges strong, the tip very narrow. The gape extends downwards a little beyond the base of the bill, and is furnished with a soft corrugated extensible membrane.

Head large, oblong, anteriorly compressed. Eye rather small, with bare orbits; over the upper eyelid an oblong, nearly erect, horny body, along the lower a more elongated one of the same nature. Neck short and thick. Body full and rounded. Wings short. Feet short, rather stout; tibia bare for a short way above the joint. Tarsus very short, little compressed, anteriorly with a series of small scutella, the rest with reticular angular scales. Hind toe wanting. Toes of moderate length, rather slender, scutellate above, connected by reticulated entire membranes which project a little, the third and fourth toes about equal, the second considerably shorter, with a narrow marginal web. Claws strong, of moderate length, compressed, slightly arched, that of the inner toe much curved and acute.

Plumage close, blended, soft, very short on the head. Wings curved, short, narrow, acute. Primary quills narrow, incurved, first longest, second a little shorter, the rest rapidly graduated. Secondaries very short, small and rounded. Tail very short, slightly rounded, of sixteen narrow rounded feathers.

Bill with the basal rim and first ridge of upper mandible dull yellow, the intervening space greyish-blue, basal margin of lower bright red, first ridge and intervening space as in the upper, the rest bright red (carmine tinged with vermilion); membrane at the base of the gape gamboge-yellow, inside of mouth and tongue yellow. Edge of eyelids vermilion, horny appendages of eyelids greyish-blue. Iris light blue. Feet vermilion, claws black. Throat and sides of the head white, that colour extending over

the eye, and passing in a narrow line behind the occiput. Upper part of the head blackish-grey, tinged with olive, paler anteriorly. The middle of the neck all round, and all the upper parts of the body, deep black, with blue reflections, the quills tinged with brown. The whole under surface white, except the upper part of the sides, which are dusky.

Length to end of tail $11\frac{3}{4}$ inches, to end of claws $13\frac{1}{2}$, extent of wings 23; bill along the back 2, along the edge of upper mandible $1\frac{1}{4}$; depth of bill at base $1\frac{5}{8}$, its greatest diameter $\frac{5}{8}$; tarsus 1, middle toe $1\frac{1}{3}$, its claw $\frac{1}{2}$. Weight $\frac{3}{4}$ lb.

Female. Plate CCXIII. Fig. 2.

The Female is precisely similar to the male, but of somewhat smaller size.

THE RAZOR-BILLED AUK.

ALCA TORDA, LINN.

PLATE CCXIV. MALE AND FEMALE.

A FEW birds of this species occasionally go as far south as New York during winter ; but beyond that parallel I never met with one. From Boston eastward many are seen, and some breed on the Seal Islands off the entrance of the Bay of Fundy. These Auks generally arrive on our Atlantic coast about the beginning of November, and return northward to breed about the middle of April. During their stay with us, they are generally seen singly, and at a greater distance from the shores than the Guillemots or Puffins ; and I have no doubt that they are able to procure shell-fish at greater depths than these birds. I have observed them fishing on banks where the bottom was fifteen or eighteen fathoms from the surface, and, from the length of time that they remained under water, felt no doubt that they dived to it. On my voyage round Nova Scotia and across the Gulf of St Lawrence, we saw some of them constantly. Some had eggs on the Magdeleine Islands, where, as the inhabitants informed us, these birds arrive about the middle of April, when the Gulf is still covered with ice. As we proceeded towards Labrador, they passed us every now and then in long files, flying at the height of a few yards from the water, in a rather undulating manner, with a constant beat of the wings, often within musket-shot of our vessel, and sometimes moving round us and coming so close as to induce us to believe that they had a wish to alight. The thermometer indicated 44°. The sight of these files of birds passing swiftly by was extremely pleasing ; each bird would alternately turn towards us the pure white of its lower parts, and again the jetty black of the upper. As I expected ere many days should pass to have the gratification of inspecting their breeding grounds, I experienced great delight in observing them as they sped their flight toward the north.

After we had landed, we every day procured Auks, notwithstanding their shyness, which exceeded that of almost all the other sea-birds. The fishermen having given me an account of their principal breeding places, the Ripley proceeded toward them apace. One fair afternoon we came

in view of the renowned Harbour of Whapati Guan, and already saw its curious beacon, which, being in form like a huge mounted cannon placed on the elevated crest of a great rock, produced a most striking effect. We knew that the harbour was within the stupendous wall of rock before us, but our pilot, either from fear or want of knowledge, refused to guide us to it, and our captain, leaving the vessel in charge of the mate, was obliged to go off in a boat, to see if he could find a passage. He was absent more than an hour. The Ripley stood off and on, the yards were manned on the look-out, the sea was smooth and its waters as clear as crystal, but the swell rose to a prodigious height as it passed sluggishly over the great rocks that seemed to line the shallows over which we floated. We were under no apprehension of personal danger, however, for we had several boats and a very efficient crew; and besides, the shores were within cannon shot; but the idea of losing our gallant bark and all our materials on so dismal a coast haunted my mind, and at times those of my companions. From the tops our sailors called out "Quite shallow here, Sir." Up went the helm, and round swung the Ripley like a duck taken by surprise. Then suddenly near another shoal we passed, and were careful to keep a sharp look-out until our commander came up.

Springing upon the deck, and turning his quid rapidly from side to side, he called out, "All hands square the yards," and whispered to me "All's safe, my good Sir." The schooner advanced towards the huge barrier, merrily as a fair maiden to meet her beloved; now she doubles a sharp cape, forces her way through a narrow pass; and lo! before you opens the noble harbour of Whapati Guan. All around was calm and solemn; the waters were smooth as glass, the sails fell against the masts, but the impetus which the vessel had received urged her along. The lead was heaved at every yard, and in a few minutes the anchor was dropped.

Reader, I wish you had been there, that you might yourself describe the wild scene that presented itself to our admiring gaze. We were separated from the rolling swell of the Gulf of St Lawrence by an immense wall of rock. Far away toward the east and north, rugged mounds innumerable rose one above another. Multitudes of frightened Cormorants croaked loudly as they passed us in the air, and at a distance fled divers Guillemots and Auks. The mossy beds around us shone with a brilliant verdure, the lark piped its sweet notes on high, and thousands of young codfish leaped along the surface of the deep cove as if with joy. Such a harbour I had never seen before; such another, it is probable, I

may never see again; the noblest fleet that ever ploughed the ocean might anchor in it in safety. To augment our pleasures, our captain some days after piloted the *Guinare* into it. But, you will say, "Where are the Auks, we have lost sight of them entirely." Never fear, good reader, we are in a delightful harbour, and anon you shall hear of them.

Winding up the basin toward the north-east, Captain Emery, myself, and some sailors, all well armed, proceeded one day along the high and precipitous shores to the distance of about four miles, and at last reached the desired spot. We landed on a small rugged island. Our men were provided with long poles, having hooks at their extremities. These sticks were introduced into the deep and narrow fissures, from which we carefully drew the birds and eggs. One place, in particular, was full of birds; it was a horizontal fissure, about two feet in height, and thirty or forty yards in depth. We crawled slowly into it, and as the birds affrighted flew hurriedly past us by hundreds, many of their eggs were smashed. The farther we advanced, the more dismal did the cries of the birds sound in our ears. Many of them, despairing of effecting their escape, crept into the surrounding recesses. Having collected as many of them and their eggs as we could, we returned, and glad were we once more to breathe the fresh air. No sooner were we out than the cracks of the sailors' guns echoed among the rocks. Rare fun to the tars, in fact, was every such trip, and, when we joined them, they had a pile of Auks on the rocks near them. The birds flew directly towards the muzzles of the guns, as readily as in any other course, and therefore it needed little dexterity to shoot them.

When the Auks deposit their eggs along with the Guillemots, which they sometimes do, they drop them in spots from which the water can escape without injuring them; but when they breed in deep fissures, which is more frequently the case, many of them lie close together, and the eggs are deposited on small beds of pebbles or broken stones raised a couple of inches or more, to let the water pass beneath them. Call this instinct if you will:—I really do not much care; but you must permit me to admire the wonderful arrangements of that Nature from which they have received so much useful knowledge. When they lay their eggs in such a horizontal cavern as that which I have mentioned above, you find them scattered at the distance of a few inches from each other; and there, as well as in the fissures, they sit flat upon them like Ducks, for example, whereas on an exposed rock, each bird stands almost

upright upon its egg. Another thing quite as curious, which I observed, is, that, while in exposed situations, the Auk seldom lays more than one egg, yet in places of greater security I have, in many instances, found two under a single bird. This may perhaps astonish you, but I really cannot help it.

The Razor-billed Auks begin to drop their eggs in the beginning of May. In July we found numerous young ones, although yet small. Their bill then scarcely exhibited the form which it ultimately assumes. They were covered with down, had a lisping note, but fed freely on shrimps and small bits of fish, the food with which their parents supply them. They were very friendly towards each other, differing greatly in this respect from the young Puffins, which were continually quarrelling. They stood almost upright. Whenever a finger was placed within their reach, they instantly seized it, and already evinced the desire to bite severely so cordially manifested by the old birds of this species, which in fact will hang to your hand until choked rather than let go their hold. The latter when wounded threw themselves on their back, in the manner of Hawks, and scratched fiercely with their claws. They walked and ran on the rocks with considerable ease and celerity, taking to wing, however, as soon as possible. When thus disturbed while breeding, they fly round the spot many times before they alight again. Sometimes a whole flock will alight on the water at some distance, to watch your departure, before they will venture to return.

This bird lays one or two eggs, according to the nature of the place. The eggs measure at an average three inches and one-eighth, by two and one-eighth, and are generally pure white, greatly blotched with dark reddish-brown or black, the spots generally forming a circle towards the larger end. They differ considerably from those of the Common and the Thick-billed Guillemots, being less blunted at the smaller end. The eggs afford excellent eating; the yolk is of a pale orange colour, the white pale blue. The eggers collect but few of the eggs of this bird, they being more difficult to be obtained than those of the Guillemot, of which they take vast numbers every season.

The food of the Razor-billed Auk consists of shrimps, various other marine animals, and small fishes, as well as roe. Their flesh is by the fishers considered good, and I found it tolerable, when well stewed, although it is dark and therefore not prepossessing. The birds are two years in acquiring the full size and form of their bill, and, when full

grown, they weighed about a pound and a half. The stomach is an oblong sac, the lower part of which is rather muscular, and answers the purpose of a gizzard. In many I found scales, remnants of fish, and pieces of shells. The intestines were upwards of three feet in length.

Immediately after the breeding season, these birds drop their quills, and are quite unable to fly until the beginning of October, when they all leave their breeding grounds for the sea, and move southward. The young at this period scarcely shew the white streak between the bill and the eye; their cheeks, like those of the old birds at this time, and the fore part of the neck, are dingy white, and remain so until the following spring, when the only difference between the young and the old is, that the former have the bill smaller and less furrowed, and the head more brown. The back, tail, and lower parts do not seem to undergo any material change.

ALCA TORDA, *Linn. Syst. Nat.* vol. i. p. 210.—*Lath. Ind. Ornith.* vol. ii. p. 793.—

Ch. Bonap. Synops. of Birds of the United States, p. 431.

RAZOR-BILL, *Nuttall, Manual*, vol. ii. p. 547.

Adult Male in summer. Plate CCXIV. Fig. 1.

Bill shorter than the head, feathered as far as the nostrils, beyond which it is very high, exceedingly compressed, and obliquely furrowed on the sides. Upper mandible with the dorsal line curved so as to form the third of a circle, the ridge extremely narrow but rounded, the sides nearly flat, with five grooves, the one next the base deeper and more narrow, the edges inflected and sharp, the tip decurved and obtuse. Nostrils medial, marginal, linear, short, pervious, but concealed by the feathers. Lower mandible with the angle very narrow, and having a horny triangular appendage, the base at first horizontal and extremely narrow, then sloping forwards and rounded, the dorsal outline rounded, towards the end concave, the sides slightly concave, the edges inflected, the tip decurved.

Head large, oblong, anteriorly narrowed. Eyes small. Neck short and strong. Body full, rather depressed. Wings small. Feet placed far behind, short, rather strong; tibia bare a short way above the joint; tarsus very short, compressed, anteriorly scutellate, laterally covered with reticulated angular scales, posteriorly granulate. Hind toe wanting; toes of moderate length, rather slender, scutellate above, connected by re-

articulated entire membranes, the inner toe having also a projecting margin; outer toe slightly longer than middle one; inner considerably shorter. Claws rather small, arched, compressed, obtuse.

Plumage close, blended, very soft, on the head very short and velvety. Wings short, curved, narrow, acute. Primary quills narrow, incurved, acute, first longest, second slightly shorter, the rest rapidly graduated; secondary quills very short, obliquely rounded. Tail short, tapering, of twelve narrow, pointed feathers.

Bill black, with a white line across each mandible; inside of the mouth gamboge-yellow. Iris deep hazel. Feet black. Fore part of neck below, and all the lower parts, white; the rest black, the head, hind neck, and back, glossed with olive-green, the throat and sides of the neck tinged with chocolate, the wings with brown, the tips of the secondary quills, and a narrow line from the bill to the eye, white.

Length to the end of tail 17 inches, to the end of claws $17\frac{3}{4}$; extent of wings $29\frac{1}{2}$; wing from flexure $8\frac{1}{4}$, tail 4; bill along the ridge $1\frac{7}{8}$, along the edge $2\frac{1}{8}$, its greatest depth $1\frac{1}{2}$; tarsus $1\frac{1}{2}$, middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$. Weight $1\frac{1}{2}$ pound.

Adult Female in summer. Plate CCXIV. Fig. 2.

The female is precisely similar to the male.

The Young in their winter plumage have the colouring distributed as in the old birds, but with the black duller, the wings more brown, the throat and sides of the head mottled with white, the white line from the bill to the eye existing, but the bill much smaller, without furrows or a white line.

The Old Birds in winter have the throat and sides of the neck mottled as described above; but in other respects their colours are the same as in summer.

The gullet wide, dilated towards the lower extremity, its mucous coat longitudinally corrugated; the proventriculus very wide and glandular; the stomach rather small, oblong, muscular, with an inner, longitudinally corrugated and horny cuticular coat. Pylorus very small; intestine near its commencement $\frac{4}{8}$ of an inch in diameter, gradually contracted to the cæca, where it is $\frac{2}{8}$; cæca half an inch long, tapering. The length of the gullet and stomach together is 8, that of the intestine 41 inches

HYPERBOREAN PHALAROPE.

PHALAROPUS HYPERBOREUS, LATH.

PLATE CCXV. MALE, FEMALE, AND YOUNG.

FEW individuals of this species are ever seen to the South of New York. Near Boston I procured several, and my learned friend THOMAS NUTTALL presented me with some that had been shot in the neighbourhood of that city, as did Mr JOHN BETHUNE and Mr RODMAN of New Bedford. As we advanced eastward in the month of May, we saw more and more of them, and while at Eastport in Maine my son JOHN shot several out of flocks of sixty or more. At one time a flock consisting of more than a hundred was seen in the Bay of Fundy. They were exceedingly shy, and the gunners of Eastport, who knew them under the name of Sea Geese, spoke of them as very curious birds.

They procure their food principally upon the water, on which they alight like Ducks, float as light as Gulls, and move about in search of food with much nimbleness. The sight of a bank of floating sea-weeds or garbage of any kind induces them at once to alight upon it, when they walk about as unconcernedly as if on land. Their notes, which resemble the syllables *tweet, tweet, tweet*, are sharp and clear, and in their flight they resemble our common American Snipe. At the approach of an enemy, they immediately close their ranks, until they almost touch each other, when great havock is made among them; but if not immediately shot at, they rise all at once and fly swiftly off emitting their shrill cries, and remove to a great distance. These Phalaropes congregate in this manner for the purpose of moving northwards to their breeding grounds, although some remain and breed as far south as Mount Desert Island. I have met with them in equally large flocks at a distance of more than a hundred miles from the shores. They were feeding on great beds of floating seaweeds, and in several instances some Red Phalaropes were seen in their company.

Whilst in Labrador, I observed that the Hyperborean Phalarope occurred only in small parties of a few pairs, and that instead of keeping at sea or on the salt-water bays, they were always in the immediate vicinity of small fresh-water lakes or ponds, near which they bred. The nest was

a hollow scooped out among the herbage, and covered with a few bits of dried grass and moss. The eggs are always four; they measure at an average an inch and three-sixteenths in length, seven-eighths in their greatest diameter, are rather pointed at the smaller end, and are more uniform in their size and markings than those of most water-birds. The ground colour is a deep dull buff, and is irregularly marked with large and small blotches of dark reddish-brown, which are larger and more abundant on the crown. The birds shewed great anxiety for the safety of their eggs, limping before us, or running with extended wings, and emitting a feeble melancholy note as if about to expire. When we approached them, they resumed all their natural alacrity, piped in their usual manner, flew off and alighted on the water. Captain EMERY and myself followed some nearly an hour, assisted by a pointer dog, in the hope of tiring them out; but they seemed to laugh at our efforts, and when Dash was quite close to them, they would suddenly fly off in another direction, and with great swiftness, always leading us farther from their nests. The young leave the nest shortly after they are hatched, and run after their parents over the moss, and along the edges of the small ponds; but I saw none on the water that were not fully fledged. Both young and old had departed by the beginning of August.

The Hyperborean Phalarope seems to undergo an almost continual moult, and is in full plumage only about six weeks each year. The young when fledged are nearly grey above, and all white beneath. Some of them breed before they have acquired what may be considered the perfect plumage; and the very old birds become greyish also at the approach of winter, the red of the throat and other parts becoming bright again in the beginning of May, or sometimes in April. The scapulars of the young are conspicuously shorter than the longest primaries, but after the first moult are equal in length. The upper wing-coverts are then also short.

I have never met with this species in any part of the interior, although I have procured the Red Phalarope and Wilson's Phalarope in many parts to the west of the Alleghany Mountains, at a distance of more than a thousand miles from the sea coast.

PHALAROPUS HYPERBOREUS, *Lath.* Ind. Ornith. vol. ii. p. 774.—*Ch. Bonaparte*, Synops. of Birds of the United States, p. 342.—*Swains. and Richards.* Fauna Bor. Amer. part ii. p. 406.

HYPERBOREAN PHALAROPE, *Ch. Bonaparte*, Amer. Ornith. vol. iii.—*Nuttall*, Manual, vol. ii. p. 239.

Adult Male in Summer. Plate CCXV. Fig. 1.

Bill long, very slender, flexible, nearly cylindrical, but towards the point tapering. Upper mandible with the dorsal line straight, excepting at the end, where it is a little curved, the ridge broad and depressed, the sides slightly sloping, the edges rounded, and inflected towards the narrow slightly curved, acute tip. Nasal groove long, linear; nostrils basal, linear, pervious. Lower mandible with the angle very long and narrow, the sides convex, the tip narrowed.

Head small, with the fore part high and rounded. Eyes small. Neck rather long and slender. Body slender. Wings long. Feet of moderate length, slender; tibia bare a considerable way above the joint; tarsus much compressed, narrowed before, very thin behind, covered anteriorly with numerous scutella; toes slender; first extremely small, free, with a slight membrane beneath; second slightly shorter than fourth, third considerably longer; toes all scutellate above, margined on both sides with lobed and pectinated membranes, which are united at the base, so as to render the foot half webbed; the outer web much longer than the inner. Claws very small, compressed, arched, that of the middle toe with a recurved sharp edge.

Plumage soft and blended. Feathers of the back, and especially the scapulars, elongated. Wings long and pointed; primary quills tapering, but rounded, the first longest, the second scarcely shorter, the rest rapidly graduated; secondary quills rather short and narrow, the inner tapering and elongated so as nearly to equal the longest primaries when the wing is closed. Tail rather short, much rounded, of twelve feathers.

Bill black. Iris dark brown. Feet bluish-grey; claws black. The general colour of the upper parts is greyish-black, the head lighter and more tinged with grey, the scapulars and some of the feathers of the back edged with yellowish-red, of which colour also are the sides of the head and neck; throat and sides of the upper part of the neck white. Wing-coverts and quills brownish-black, tinged with grey, the shafts of the quills, the margins and tips of the secondaries, and a broad bar on the

tips of the secondary coverts, white. Tail light grey, the feathers margined with white, the two middle ones dark brownish-grey, the lateral upper tail-coverts white, barred with dusky. The breast and abdomen white.

Length to end of tail 6 inches, to end of claws $6\frac{1}{4}$, to end of wing $5\frac{3}{4}$; extent of wings $13\frac{1}{2}$; wing from flexure $4\frac{1}{2}$; tail $2\frac{1}{4}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $1\frac{0}{8}$, middle toe $1\frac{0}{8}$, its claw $\frac{2}{12}$.

Adult Female. Plate CCXV. Fig. 2.

The Female is similar to the male, but the red markings are not so deep in tint.

Young fully fledged. Plate CCXV. Fig. 3.

The young bird has the markings similarly disposed, but the upper parts are in general of a dull dark grey, the red of the neck much fainter, and that of the scapulars much paler, and inclining to greyish-yellow.

FISHING IN THE OHIO.

IT is with mingled feelings of pleasure and regret that I recall to my mind the many pleasant days I have spent on the shores of the Ohio. The visions of former years crowd on my view, as I picture to myself the fertile soil and genial atmosphere of our great western garden, Kentucky, and view the placid waters of the fair stream that flows along its western boundary. Methinks I am now on the banks of the noble river. Twenty years of my life have returned to me ; my sinews are strong, and the " bowstring of my spirit is not slack ;" bright visions of the future float before me, as I sit on a grassy bank, gazing on the glittering waters. Around me are dense forests of lofty trees and thickly tangled undergrowth, amid which are heard the songs of feathered choristers, and from whose boughs hang clusters of glowing fruits and beautiful flowers. Reader, I am very happy. But now the dream has vanished, and here I am in the British Athens, penning an episode for my Ornithological Biography, and having before me sundry well-thumbed and weather-beaten folios, from which I expect to be able to extract some interesting particulars respecting the methods employed in those days in catching Cat-fish.

But, before entering on my subject, I will present you with a brief description of the place of my residence on the banks of the Ohio. When I first landed at Henderson in Kentucky, my family, like the village, was quite small. The latter consisted of six or eight houses ; the former of my wife, myself, and a young child. Few as the houses were, we fortunately found one empty. It was a *log-cabin*, not a *log-house* ; but as better could not be had, we were pleased. Well, then, we were located. The country around was thinly peopled, and all purchasable provisions rather scarce ; but our neighbours were friendly, and we had brought with us flour and bacon-hams. Our pleasures were those of young people not long married, and full of life and merriment ; a single smile from our infant was, I assure you, more valued by us than all the treasures of a modern Croesus would have been. The woods were amply stocked with game, the river with fish ; and now and then the hoarded sweets of the industrious bees were brought from some hollow tree to our little table. Our child's cradle was our richest piece of furniture, our guns and fishing-lines our most serviceable implements, for although we began to cul-

tivate a garden, the rankness of the soil kept the seeds we planted far beneath the tall weeds that sprung up the first year. I had then a partner, a "man of business," and there was also with me a Kentucky youth, who much preferred the sports of the forest and river to either day-book or ledger. He was naturally, as I may say, a good woodsman, hunter, and angler, and, like me, thought chiefly of procuring supplies of fish and fowl. To the task accordingly we directed all our energies.

Quantity as well as quality was an object with us, and although we well knew that three species of Cat-fish existed in the Ohio, and that all were sufficiently good, we were not sure as to the best method of securing them. We determined, however, to work on a large scale, and immediately commenced making a famous "trot-line." Now, reader, as you may probably know nothing about this engine, I shall describe it to you.

A trot-line is one of considerable length and thickness, both qualities, however, varying according to the extent of water, and the size of the fish you expect to catch. As the Ohio, at Henderson, is rather more than half a mile in breadth, and as Cat-fishes weigh from one to an hundred pounds, we manufactured a line which measured about two hundred yards in length, as thick as the little finger of some fair one yet in her teens, and as white as the damsel's finger well could be, for it was wholly of Kentucky cotton, just, let me tell you, because that substance stands the water better than either hemp or flax. The main line finished, we made a hundred smaller ones, about five feet in length, to each of which we fastened a capital hook of KIRBY and Co.'s manufacture. Now for the bait !

It was the month of May. Nature had brought abroad myriads of living beings : they covered the earth, glided through the water, and swarmed in the air. The Cat-fish is a voracious creature, not at all nice in feeding, but one who, like the vulture, contents himself with carrion when nothing better can be had. A few experiments proved to us that, of the dainties with which we tried to allure them to our hooks, they gave a decided preference, at that season, to *live toads*. These animals were very abundant about Henderson. They ramble or feed, whether by instinct or reason, during early or late twilight more than at any other time, especially after a shower, and are unable to bear the heat of the sun's rays for several hours before and after noon. We have a good number of these crawling things in America, particularly in the western and southern parts of the Union, and are very well supplied with frogs, snakes, lizards,

and even crocodiles, which we call alligators ; but there is enough of food for them all, and we generally suffer them to creep about, to leap or to flounder as they please, or in accordance with the habits which have been given them by the great Conductor of all.

During the month of May, and indeed until autumn, we found an abundant supply of toads. Many "fine ladies," no doubt, would have swooned, or at least screamed and gone into hysterics, had they seen one of our baskets filled with these animals, all alive and plump. Fortunately we had no tragedy queen or sentimental spinster at Henderson. Our Kentucky ladies mind their own affairs, and seldom meddle with those of others farther than to do all they can for their comfort. The toads, collected one by one, and brought home in baskets, were deposited in a barrel for use. And now that night is over, and as it is the first trial we are going to give our trot-line, just watch our movements from that high bank beside the stream. There sit down under the large cotton-wood tree. You are in no danger of catching cold at this season.

My assistant follows me with a gaff hook, while I carry the paddle of our canoe ; a boy bears on his back a hundred toads as good as ever hopped. Our line—oh, I forgot to inform you that we had set it last night, but without the small ones you now see on my arm. Fastening one end to yon sycamore, we paddled our canoe, with the rest nicely coiled in the stern, and soon reached its extremity, when I threw over the side the heavy stone fastened to it as a sinker. All this was done that it might be thoroughly soaked, and without kinks or snarls in the morning. Now, you observe, we launch our light bark, the toads in the basket are placed next to my feet in the bow ; I have the small lines across my knees all ready looped at the end. NAT, with the paddle, and assisted by the current, keeps the stern of our boat directly down stream ; and DAVIN fixes, by the skin of the back and hind parts, the living bait to the hook. I hold the main line all the while, and now, having fixed one linelet to it, over goes the latter. Can you see the poor toad kicking and flouncing in the water ? "No"—well, I do. You observe at length that all the lines, one after another, have been fixed, baited, and dropped. We now return swiftly to the shore.

"What a delightful thing is fishing !" have I more than once heard some knowing angler exclaim, who, with "the patience of Job," stands or slowly moves along some rivulet twenty feet wide, and three or four feet deep, with a sham fly to allure a trout, which, when at length

caught, weighs half a pound. Reader, I never had such patience. Although I have waited ten years, and yet see only three-fourths of the Birds of America engraved, although some of the drawings of that work were patiently made so long ago as 1805, and although I have to wait with patience two years more before I see the end of it, I never could hold a line or a rod for many minutes, unless I had—not a “nibble,” but a hearty bite, and could throw the fish at once over my head on the ground. No, no—If I fish for trout, I must soon give up, or catch, as I have done in Pennsylvania’s Lehigh, or the streams of Maine, fifty or more in a couple of hours. But the trot-line is in the river, and there it may patiently wait, until I visit it toward night. Now I take up my gun and note-book, and, accompanied by my dog, intend to ramble through the woods until breakfast. Who knows but I may shoot a turkey or a deer? It is barely four o’clock; and see what delightful mornings we have at this season in Kentucky!

Evening has returned. The heavens have already opened their twinkling eyes, although the orb of day has yet scarcely withdrawn itself from our view. How calm is the air! The nocturnal insects and quadrupeds are abroad; the bear is moving through the dark canebrake, the land crows are flying towards their roosts, their aquatic brethren towards the interior of the forests, the squirrel is barking his adieu, and the Barred Owl glides silently and swiftly from his retreat, to seize upon the gay and noisy animal. The boat is pushed off from the shore; the main-line is in my hands; now it shakes; surely some fish have been hooked. Hand over hand I proceed to the first hook. Nothing there! But now I feel several jerks stronger and more frequent than before. Several hooks I pass; but sec, what a fine Cat-fish is twisting round and round the little line to which he is fast! NAT, look to your gaff—hook him close to the tail. Keep it up, my dear fellow!—there now, we have him. More are on, and we proceed. When we have reached the end many goodly fishes are lying in the bottom of our skiff. New bait has been put on, and, as we return, I congratulate myself and my companions on the success of our efforts; for there lies fish enough for ourselves and our neighbours.

A trot-line at this period was perfectly safe at Henderson, should I have allowed it to remain for weeks at a time. The navigation was mostly performed by flat-bottomed boats, which during calm nights floated

in the middle current of the river, so that the people on board could not observe the fish that had been hooked. Not a single steamer had as yet ever gone down the Ohio; now and then, it is true, a barge or a keel-boat was propelled by poles and oars; but the nature of the river is such at that place, that these boats when ascending were obliged to keep near the Indiana shore, until above the landing of the village, (below which I always fixed my lines), when they pulled across the stream.

Several species or varieties of Cat-fish are found in the Ohio, namely the Blue, the White, and the Mud Cats, which differ considerably in their form and colour, as well as in their habits. The Mud Cat is the best, although it seldom attains so great a size as the rest. The Blue Cat is the coarsest, but when not exceeding from four to six pounds, it affords tolerable eating. The White Cat is preferable to the last, but not so common; and the Yellow Mud Cat is the best and rarest. Of the blue kind some have been caught that weighed a hundred pounds. Such fishes, however, are looked upon as monsters.

The form in all the varieties inclines to the conical, the head being disproportionately large, while the body tapers away to the root of the tail. The eyes, which are small, are placed far apart, and situated as it were on the top of the forehead, but laterally. Their mouth is wide, and armed with numerous small and very sharp teeth, while it is defended by single-sided spines, which, when the fish is in the agonies of death, stand out at right angles, and are so firmly fixed as sometimes to break before you can loosen them. The Cat-fish has also feelers of proportionate length, apparently intended to guide its motions over the bottom, whilst its eyes are watching the objects passing above.

Trot-lines cannot be used with much success unless during the middle stages of the water. When very low, it is too clear, and the fish, although extremely voracious, will rarely risk its life for a toad. When the waters are rising rapidly, your trot-lines are likely to be carried away by one of the numerous trees that float in the stream. A "happy medium" is therefore best.

When the waters are rising fast and have become muddy, a single line is used for catching Cat-fish. It is fastened to the elastic branch of some willow several feet above the water, and must be twenty or thirty feet in length. The entrails of a Wild Turkey, or a piece of fresh venison, furnish good bait; and if, when you visit your line the next morning

after you have set it, the water has not risen too much, the swinging of the willow indicates that a fish has been hooked, and you have only to haul the prize ashore.

One evening I saw that the river was rising at a great rate, although it was still within its banks. I knew that the White Perch were running, that is, ascending the river from the sea, and, anxious to have a tasting of that fine fish, I baited a line with a cray-fish, and fastened it to the bough of a tree. Next morning as I pulled in the line, it felt as if fast at the bottom, yet on drawing it slowly I found that it came. Presently I felt a strong pull, the line slipped through my fingers, and next instant a large Cat-fish leaped out of the water. I played it for a while, until it became exhausted, when I drew it ashore. It had swallowed the hook, and I cut off the line close to its head. Then passing a stick through one of the gills, I and a servant tugged the fish home. On cutting it open, we, to our surprise, found in its stomach a fine White Perch, dead, but not in the least injured. The Perch had been lightly hooked, and the Cat-fish, after swallowing it, had been hooked in the stomach, so that, although the instrument was small, the torture caused by it no doubt tended to disable the Cat-fish. The Perch we ate, and the Cat, which was fine, we divided into four parts, and distributed among our neighbours. My most worthy friend and relative, NICHOLAS BERTHOUD, Esq., who formerly resided at Shippingport in Kentucky, but now in New York, a better fisher than whom I never knew, once placed a trot-line in "the basin" below "Tarascon's Mills," at the foot of the Rapids of the Ohio. I cannot recollect the bait which was used; but on taking up the line we obtained a remarkably fine Cat-fish, in which was found the greater part of a sucking pig!

I may here add, that I have introduced a figure of the Cat-fish in Plate XXXI. of my first volume of my Illustrations, in which I have represented the White-headed Eagle.

THE WOOD IBIS

TANTALUS LOCULATOR, LINN.

PLATE CCXVI. MALE.

THIS very remarkable bird, and all others of the same genus that are known to occur in the United States, are constant residents in some part of our Southern Districts, although they perform short migrations. A few of them now and then stray as far as the Middle States, but instances of this are rare; and I am not aware that any have been seen farther to the eastward than the southern portions of Maryland, excepting a few individuals of the Glossy and the White Ibises, which have been procured in Pennsylvania, New Jersey, and New York. The Carolinas, Georgia, the Floridas, Alabama, Lower Louisiana, including Opellousas, and Mississippi, are the districts to which they resort by preference, and in which they spend the whole year. With the exception of the Glossy Ibis, which may be looked upon as a bird of the Mexican territories, and which usually appears in the Union singly or in pairs, they all live socially in immense flocks, especially during the breeding season. The country which they inhabit is doubtless the best suited to their habits; the vast and numerous swamps, lagoons, bayous, and submersed savannahs that occur in the lower parts of our Southern States, all abounding with fishes and reptiles; and the temperature of these countries being congenial to their constitutions.

In treating of the bird now under your notice, Mr WILLIAM BARTRAM says, "This solitary bird does not associate in flocks, but is generally seen alone." This was published by WILSON, and every individual who has since written on the subject, has copied the assertion without probably having any other reason than that he believed the authors of it to state a fact. But the habits of this species are entirely at variance with the above quotation, to which I direct your attention not without a feeling of pain, being assured that Mr BARTRAM could have made such a statement only because he had few opportunities of studying the bird in question in its proper haunts.

The Wood Ibis is rarely met with single, even after the breeding season, and it is more easy for a person to see an hundred together at any

period of the year, than to meet with one by itself. Nay, I have seen flocks composed of several thousands, and that there is a natural necessity for their flocking together I shall explain to you. This species feeds entirely on fish and aquatic reptiles, of which it destroys an enormous quantity, in fact more than it eats; for if they have been killing fish for half an hour and have gorged themselves, they suffer the rest to lie on the water untouched, when it becomes food for alligators, crows, and vultures, whenever these animals can lay hold of it. To procure its food, the Wood Ibis walks through shallow muddy lakes or bayous in numbers. As soon as they have discovered a place abounding in fish, they dance as it were all through it, until the water becomes thick with the mud stirred from the bottom by their feet. The fishes, on rising to the surface, are instantly struck by the beaks of the Ibises, which, on being deprived of life, they turn over and so remain. In the course of ten or fifteen minutes, hundreds of fishes, frogs, young alligators, and water-snakes cover the surface, and the birds greedily swallow them until they are completely gorged, after which they walk to the nearest margins, place themselves in long rows, with their breasts all turned towards the sun, in the manner of Pelicans and Vultures, and thus remain for an hour or so. When digestion is partially accomplished, they all take to wing, rise in spiral circlings to an immense height, and sail about for an hour or more, performing the most beautiful evolutions that can well be conceived. Their long necks and legs are stretched out to their full extent, the pure white of their plumage contrasts beautifully with the jetty black of the tips of their wings. Now in large circles they seem to ascend toward the upper regions of the atmosphere; now, they pitch towards the earth; and again, gently rising, they renew their gyrations. Hunger once more induces them to go in search of food, and, with extended front, the band sails rapidly towards another lake or bayou.

Mark the place, reader, and follow their course through cane-brake, cypress-swamp, and tangled wood. Seldom do they return to the same feeding place on the same day. You have reached the spot, and are standing on the margin of a dark-watered bayou, the sinuosities of which lead your eye into a labyrinth ending in complete darkness. The tall canes bow to each other from the shores; the majestic trees above them, all hung with funereal lichen, gently wave in the suffocating atmosphere; the bullfrog, alarmed, shrinks back into the water; the alligator raises his head above its surface, probably to see if the birds have arrived, and

the wily cougar is stealthily advancing toward one of the Ibises, which he expects to carry off into the thicket. Through the dim light your eye catches a glimpse of the white-plumaged birds, moving rapidly like spectres to and fro. The loud clacking of their mandibles apprises you of the havock they commit among the terrified inhabitants of the waters, while the knell-like sounds of their feet come with a feeling of dread. Move, gently or not, move at all, and you infallibly lose your opportunity of observing the actions of the birds. Some old male has long marked you ; whether it has been with eye or with ear, no matter. The first stick your foot cracks, his hoarse voice sounds the alarm. Off they all go, battering down the bending canes with their powerful pinions, and breaking the smaller twigs of the trees, as they force a passage for themselves.

Talk to me of the stupidity of birds, of the dulness of the Wood Ibis ! say it is fearless, easily approached, and easily shot. I listen, but it is merely through courtesy ; for I have so repeatedly watched its movements, in all kinds of circumstances, that I am quite convinced we have not in the United States a more shy, wary, and vigilant bird than the Wood Ibis. In the course of two years spent, I may say, among them, for I saw some whenever I pleased during that period, I never succeeded in surprising one, not even under night, when they were roosting on trees at a height of nearly a hundred feet, and sometimes rendered farther secure by being over extensive swamps.

My Journal informs me, that, one autumn while residing near Bayou Sara, being intent on procuring eight or ten of these birds, to skin for my learned and kind friend the Prince of Musignano, I took with me two servants, who were first-rate woodsmen, and capital hands at the rifle, and that notwithstanding our meeting with many hundreds of Wood Ibises, it took us three days to shoot fifteen, which were for the most part killed on wing with rifle-balls, at a distance of about a hundred yards. On that occasion we discovered that a flock roosted regularly over a large corn field covered with huge girted trees, the tops of which were almost all decayed. We stationed ourselves apart in the field, concealed among the tall ripened corn, and in silence awaited the arrival of the birds. After the sun had disappeared, the broad front of a great flock of Ibises was observed advancing towards us. They soon alighted in great numbers on the large branches of the dead trees ; but whenever one of the branches gave way under their weight, all at once rose in the air, flew about several times, and alighted again. One of my companions, having

a good opportunity, fired, and brought two down with a single bullet ; but here the sport was ended. In five minutes after, not an Ibis was within a mile of the place, nor did any return to roost there for more than a month. When on the margin of a lake, or even in the centre of it—for all the lakes they frequent are exceedingly shallow—the first glimpse they have of a man induces them to exert all their vigilance ; and should he after this advance a few steps, the birds fly off.

The name of “ Wood Ibis ” given to this bird, is not more applicable to it than to any other species ; for every one with which I am acquainted resorts quite as much to the woods at particular periods. All our species may be found on wet savannahs, on islands surrounded even by the waters of the sea, the Florida Keys for example, or in the most secluded parts of the darkest woods, provided they are swampy, or are furnished with ponds. I have found the Wood, the Red, the White, the Brown, and the Glossy Ibises, around ponds in the centre of immense forests ; and in such places, even in the desolate pine-barrens of the Floridas ; sometimes several hundred miles from the sea coast, on the Red River, in the State of Louisiana, and above Natchez, in that of Mississippi, as well as within a few miles of the ocean. Yet, beyond certain limits, I never saw one of these birds.

One of the most curious circumstances connected with this species is, that although the birds are, when feeding, almost constantly within the reach of large alligators, of which they devour the young, these reptiles never attack them ; whereas if a Duck or a Heron comes within the reach of their tails, it is immediately killed and swallowed. The Wood Ibis will wade up to its belly in the water, round the edges of “ alligators’ holes,” without ever being injured ; but should one of these birds be shot, an alligator immediately makes towards it and pulls it under water. The gar-fish is not so courteous, but gives chase to the Ibises whenever an opportunity occurs. The Snapping Turtle is also a great enemy to the young birds of this species.

The flight of the Wood Ibis is heavy at its rising from the ground. Its neck at that moment is deeply curved downward, its wings flap heavily but with great power, and its long legs are not stretched out behind until it has proceeded many yards. But as soon as it has attained a height of eight or ten feet, it ascends with great celerity, generally in a spiral direction, in silence if not alarmed, or, if frightened, with a rough croaking guttural note. When fairly on wing, they proceed in a direct

flight, with alternate flappings and sailings of thirty or forty yards, the sailings more prolonged than the flappings. They alight on trees with more ease than Herons generally do, and either stand erect or crouch on the branches, in the manner of the Wild Turkey, the Herons seldom using the latter attitude. When they are at rest, they place their bill against the breast, while the neck shrinks as it were between the shoulders. In this position you may see fifty on the same tree, or on the ground, reposing in perfect quiet for hours at a time, although some individual of the party will be constantly on the look-out, and ready to sound the alarm.

In the spring months, when these birds collect in large flocks, before they return to their breeding places, I have seen thousands together, passing over the woods in a line more than a mile in extent, and moving with surprising speed at the height of only a few yards above the trees. When a breeding place has once been chosen, it is resorted to for years in succession; nor is it easy to make them abandon it after they have deposited their eggs, although, if much annoyed, they never return to it after that season.

Besides the great quantity of fishes that these Ibises destroy, they also devour frogs, young alligators, wood-rats, young rails and grakles, fiddlers and other crabs, as well as snakes and small turtles. They never eat the eggs of the alligator, as has been alleged, although they probably would do so, could they demolish the matted nests of that animal, a task beyond the power of *any* bird known to me. I never saw one eat any thing which either it or some of its fellows had not killed. Nor will it eat an animal that has been dead for some time, even although it may have been killed by itself. When eating, the clacking of their mandibles may be heard at the distance of several hundred yards.

When wounded, it is dangerous to approach them, for they bite severely. They may be said to be very tenacious of life. Although usually fat, they are very tough and oily, and therefore are not fit for food. The Negroes, however, eat them, having, previous to cooking them, torn off the skin, as they do with Pelicans and Cormorants. My own attempts, I may add, were not crowned with success. Many of the Negroes of Louisiana destroy these birds when young, for the sake of the oil which their flesh contains, and which they use in greasing machines.

The French Creoles of that State name them "Grands Flamans," while the Spaniards of East Florida know them by the name of "Gan-

nets." When in the latter country, at St Augustine, I was induced to make an excursion, to visit a large pond or lake, where I was assured there were Gannets in abundance, which I might shoot off the trees, provided I was careful enough. On asking the appearance of the Gannets, I was told that they were large white birds, with wings black at the end, a long neck, and a large sharp bill. The description so far agreeing with that of the Common Gannet or Solan Goose, I proposed no questions respecting the legs or tail, but went off. Twenty-three miles, Reader, I trudged through the woods, and at last came in view of the pond; when, lo! its borders and the trees around it were covered with Wood Ibises. Now, as the good people who gave the information spoke according to their knowledge, and agreeably to their custom of calling the Ibises Gannets, had I not gone to the pond, I might have written this day that Gannets are found in the interior of the woods in the Floridas, that they alight on trees, &c. which, if *once* published, would in all probability have gone down to future times through the medium of compilers, and all perhaps without acknowledgment.

The Wood Ibis takes four years in attaining full maturity, although birds of the second year are now and then found breeding. This is rare, however, for the young birds live in flocks by themselves, until they have attained the age of about three years. They are at first of a dingy brown, each feather edged with paler; the head is covered to the mandibles with short downy feathers, which gradually fall off as the bird advances in age. In the third year, the head is quite bare, as well as a portion of the upper part of the neck. In the fourth year, the bird is as you see it in the plate. The male is much larger and heavier than the female, but there is no difference in colour between the sexes.

TANTALUS LOCULATOR, *Linn. Syst. Nat.* vol. i. p. 240.—*Lath. Ind. Ornith.* vol. ii. p. 702.—*Ch. Bonaparte, Synops. of Birds of the United States*, p. 310.

WOOD IBIS, TANTALUS LOCULATOR, *Wils. Amer. Ornith.* vol. viii. p. 39. pl. 68. fig. 1. Adult.—*Nuttall, Manual*, vol. ii. p. 82.

Adult Male. Plate CCXVI.

Bill long, stout, at the base as wide as the face, deeper than broad, compressed, tapering towards the end, which is curved. Upper mandible with the dorsal line straight to near the end, then considerably curved, the ridge rather broad and flattened at the base, narrowed at the

middle, convex towards the end, the sides sloping and rather flat at the base, towards the end rounded, the edges overlapping, inflected, sharp but strong, the tip declinate, narrow, rounded, with a notch on either side. Nostrils basal, close to the ridge, direct, pervious, oblong; no nasal groove. Lower mandible curved towards the end, like the upper, its angle rather wide, and having a bare dilatable membrane, the sides rather flat and erect at the base, afterwards narrowed and with the back rounded, the edges erect, sharp, with a groove externally for the insertion of those of the upper mandible.

Head of ordinary size, short, compressed. Neck long. Body rather slender, deeper than broad. Wings large. Feet very long, slender, like those of the Herons. Tibia long, slender, bare for one-half of its length; and with the long, compressed tarsus, covered all round with hexagonal scales. Toes rather long and slender, the first smallest, the second next in length, the third longest, the fourth intermediate between the second and third, all covered above with numerous scutella, laterally with angular scales, beneath flattened with soft margins, the anterior connected at the base by pretty large webs, of which the outer is larger. Claws small, rather compressed, rounded above, obtuse, the thin edge of that of the third not serrated.

The head all round, and the hind neck half way down, destitute of feathers, the skin wrinkled and covered with irregular scurfy scales. Plumage in general rather loose, more so on the neck. Wings long, ample, primaries strong, the third longest, second almost as long, fourth about the same length as third, first considerably shorter, all curved, emarginate, of twelve broad, rounded feathers.

Bill dusky yellowish-brown, the edges yellow. Sides of the head dark bluish-purple, upper part of the head horn-colour or dull greyish-yellow, the rest of the bare skin of the same tint, many of the scales anteriorly blue. Iris deep brown, at a distance seeming black. Tibia and tarsus indigo-blue. Toes above black, on the lateral and hind toes, however, many of the scutella bluish-grey; the webs pale yellowish flesh-colour; claws black.

The general colour of the plumage is pure white with a tinge of yellow. Alula, primary coverts, primary and secondary quills, excepting the inner, and tail, black, with green and purplish-blue reflections, according to the light in which they are viewed.

Length to end of tail $44\frac{1}{2}$ inches, to end of claws $59\frac{1}{2}$, to end of wings

46½; wing from flexure 18; tail 6; extent of wings 62; bill along the back 9½, along the edge 9, its greatest depth 2¼; bare part of tibia 6; tarsus 9; middle toe 4⅞, its claw ¾. Weight 11¾ lb.

The Female is precisely similar to the Male, differing merely in being smaller. Its weight is 9¼ lb.

The Young are dusky grey all over, the quills and tail brownish-black. The head all covered with down, excepting just at the base of the bill. After the first moult, the bare space extends over the head and cheeks; the downy feathers of the hind head and neck are dusky; the general colour of the plumage is white, the quills and tail nearly as in the adult, but with less gloss. A Male of this description shot in January was in length 35 inches, its bill 7½, tarsus 7, middle toe 4, its claw ½; its weight 7¾ lb.

When the Wood Ibis has caught a fish too large to be easily swallowed, it shakes its head in a violent manner, as if to force its prey down or drive it up again. In the latter case, it carries the fish to the shore, and breaks it into pieces, which it then swallows.

This species has the subcutaneous cellular tissue highly developed, especially along the breast, and the lower parts of the body, although not by any means so much so as in the Brown Pelican. I have represented a flock of these birds in the back ground, with the view of giving you an idea of the swamps to which they usually resort. They are on the edge of an alligator's hole, at their avocations. The trees, clad with dangling mosses, afford evidence of the insalubrity of the atmosphere. You see the alligators with their heads and backs above water, watching the motions of the birds.

LOUISIANA HERON.

ARDEA LUDOVICIANA, WILS.

PLATE CCXVII. MALE.

DELICATE in form, beautiful in plumage, and graceful in its movements, I never see this interesting Heron, without calling it the Lady of the Waters. Watch its motions, as it leisurely walks over the pure sand beaches of the coast of Florida, arrayed in the full beauty of its spring plumage. Its pendent crest exhibits its glossy tints, its train falls gracefully over a well defined tail, and the tempered hues of its back and wings contrast with those of its lower parts. Its measured steps are so light that they leave no impression on the sand, and with its keen eye it views every object around with the most perfect accuracy. See, it has spied a small fly lurking on a blade of grass, it silently runs a few steps, and with the sharp point of its bill it has already secured the prey. The minnow just escaped from the pursuit of some larger fish has almost rushed upon the beach for safety ; but the quick eye of the Heron has observed its motions, and in an instant it is swallowed alive. Among the herbage yet dripping with dew the beautiful bird picks its steps. Not a snail can escape its keen search, and as it moves around the muddy pool, it secures each water lizard that occurs. Now the sun's rays have dried up the dews, the flowers begin to droop, the woodland choristers have ended their morning concert, and like them, the Heron, fatigued with its exertions, seeks a place of repose under the boughs of the nearest bush, where it may in safety await the coolness of the evening. Then for a short while it again searches for food. Little difficulty does it experience in this ; and at length, with the last glimpse of day, it opens its wings, and flies off towards its well-known roosting-place, where it spends the night contented and happy.

This species, which is a constant resident in the southern parts of the peninsula of the Floridas, seldom rambles far from its haunts during the winter season, being rarely seen at that period beyond Savannah in Georgia to the eastward. To the west it extends to the broad sedgy flats bordering the mouths of the Mississippi, along the whole Gulf of Mexico, and perhaps much farther south. In the beginning of spring, it is

found abundantly in the Carolinas, and sometimes as far east as Maryland, or up the Mississippi as high as Natchez. You never find it far inland : perhaps forty miles would be a considerable distance at any time of the year. It is at all seasons a social bird, moving about in company with the Blue Heron or the White Egret. It also frequently associates with the larger species, and breeds in the same places, along with the White Heron, the Yellow-crowned Heron, and the Night Heron ; but more generally it resorts to particular spots for this purpose, keeping by itself, and assembling in great numbers. Those which visit the Carolinas, or the country of the Mississippi, make their appearance there about the first of April, or when the Egrets and other species of Heron seek the same parts, returning to the Floridas or farther south about the middle of September, although I have known some to remain there during mild winters. When this is the case, all the other species may be met with in the same places, as the Louisiana Heron is the most delicate in constitution of all. Whilst at St Augustine in Florida, in the month of January, I found this species extremely abundant there ; but after a hard frost of a few days, they all disappeared, leaving the other Herons, none of which seemed to be affected by the cold, and returned again as soon as the Fahrenheit thermometer rose to 80°. There they were in full livery by the end of February, and near Charleston by the 5th of April.

Although timid, they are less shy than most other species, and more easily procured. I have frequently seen one alight at the distance of a few yards, and gaze on me as if endeavouring to discover my intentions. This apparent insensibility to danger has given rise to the appellation of *Egrette folle*, which is given to them in Lower Louisiana.

The flight of this beautiful Heron is light, rather irregular, swifter than that of any other species, and capable of being considerably protracted. They usually move in long files, rather widely separated, and in an undulating manner, with constant flappings. When proceeding towards their roosts, or when on their migrations, they pass as high over the country as other species ; on the former occasion, they pass and repass over the same tract, thus enabling the gunner easily to shoot them, which he may especially calculate on doing at the approach of night, when they are gorged with food, and fly lower than in the morning. They may, however, be still more surely obtained on their arriving at their roosting place, where they alight at once among the lowest branches. On being shot at, they seldom fly to a great distance, and their attachment to a particular place

is such that you are sure to find them there during the whole period of their stay in the country, excepting the breeding time. At the cry of a wounded one, they assail you in the manner of some Gulls and Terns, and may be shot in great numbers by any person fond of such sport.

On the 29th of April, while wading around a beautiful key of the Floridas, in search of certain crustaceous animals called the sea Cray-fish, my party and I suddenly came upon one of the breeding places of the Louisiana Heron. The southern exposures of this lovely island were overgrown with low trees and bushes matted together by thousands of smilaxes and other creeping plants, supported by various species of cactus. Among the branches some hundred pairs of these lovely birds had placed their nests, which were so low and so close to each other, that without moving a step one could put his hand into several. The birds thus taken by surprise rose affrighted into the air, bitterly complaining of being disturbed in their secluded retreat. The nests were formed of small dried sticks crossing each other in various ways. They were flat, had little lining, and each contained three eggs, all the birds being then incubating. Observing that many eggs had been destroyed by the Crows and Buzzards, as the shells were scattered on the ground, I concluded that many of the Herons had laid more than once, to make up their full complement of eggs; for my opinion is, that all our species, excepting the Green Heron, never lay more nor less than three, unless an accident should happen. The eggs of the Louisiana Heron measure one inch and six and a half twelfths in length, an inch and a quarter in breadth; they are nearly elliptical, of a beautiful pale blue colour inclining to green, smooth, and with a very thin shell. The period of incubation is twenty-one days. Like all other species of the genus, this raises only one brood in the season. The little island of which I have spoken lies exposed to the sea, and has an extent of only a few acres. The trees or bushes with which it was covered seemed to have been stunted by the effect produced by their having been for years the receptacles of the Herons' nests.

On the 19th May, in the same year, I found another breeding place of this species not far from Key West. The young birds, which stood on all the branches of the trees and bushes on the southern side of the place, were about the size of our Little Partridge. Their notes, by which we had been attracted to the spot, were extremely plaintive, and resembled the syllables *wiee, wiee, wiee*. When we went up to them, the old birds all flew to another key, as if intent on drawing us there; but in vain, for

we took with us a good number of their young. It was surprising to see the little fellows moving about among the branches, clinging to them in all sorts of curious positions, and persevering in forcing their way toward the water, when over which they at once dropped, and swam off from us with great vigour and speed. When seized with the hand, they defended themselves to the utmost. At this early period, they plainly shewed the sprouting feathers of the crest. Many Crow Blackbirds had nests on the same mangroves, and a Fish-Hawk also had formed its nest there at a height of not more than five feet from the water. On the 24th of May, these Herons were fully fledged, and able to fly to a short distance. In this state we, with some difficulty, procured one alive. Its legs and feet were green, the bill black, but its eyes, like those of an adult bird, were of a beautiful red hue. Many were caught afterwards and taken as passengers on board the Marion. They fed on any garbage thrown to them by the sailors; but whenever another species came near them, they leaped towards its bill, caught hold of it as if it had been a fish, and hung to it until shaken off by their stronger associates. On several occasions, however, the *Ardea occidentalis* shook them off violently, and after beating them on the deck, swallowed them before they could be rescued!

The place farthest up on the Mississippi where I have found this species breeding was on Buffalo Creek, about forty miles below Natchez, and ten miles in a direct line from the great river. To the eastward I have found them, breeding in company with the Green Heron and the Night Heron, within a few miles of Charleston.

During summer and autumn, after the old birds have left their young, both are frequently seen in the rice-fields, feeding along the ditches by which the water is led to those places. At this season they are uncommonly gentle and easily approached.

The Louisiana Heron acquires the full beauty of its plumage the second year after its birth, although it continues for some time to increase in size. The train and crest lengthen for several years until they become as represented in the plate. To procure specimens in such complete plumage, however, requires some care, for this state does not last many days after pairing has taken place, and by the time the young are hatched much of this fine plumage has dropped. When autumn has come, only a few of the long barbs remain, and in winter no appearance of them can be seen.

The flesh of the young birds affords tolerable eating. The food of

this species consists of small fry, water insects, worms, slugs, and snails, as well as leeches, tadpoles, and aquatic lizards.

LOUISIANA HERON, *ARDEA LUDOVICIANA*, *Wils. Amer. Ornith.* vol. viii. p. 13. pl. 64.

fig. 1. adult.—*Nuttall, Manual*, vol. ii. p. 51.

ARDEA LUDOVICIANA, *Ch. Bonaparte, Synops. of Birds of the United States*, p. 305.

Adult Male. Plate CCXVII.

Bill much longer than the head, straight, compressed, tapering to a point, the mandibles nearly equal. Upper mandible with the dorsal line nearly straight, the ridge broad and slightly convex at the base, narrowed towards the end, a groove from the base to two-thirds of the length, beneath which the sides are convex, the edges thin and sharp, with a notch on each side close to the sharp tip. Nostrils basal, linear, longitudinal, with a membrane above and behind. Lower mandible with the angle extremely narrow and elongated, the dorsal line beyond it ascending and almost straight, the edges sharp and slightly inflected, the tip acuminate.

Head rather small, oblong, compressed. Neck very long and slender. Body slender and compressed; wings rather large. Feet very long; tibia elongated, its lower half bare, very slender, covered all round with angular scales, of which the posterior are scutelliform; tarsus elongated, slender, compressed, covered anteriorly with numerous scutella, laterally and behind with angular scales. Toes of moderate length, rather slender, scutellate above, reticularly granulate beneath; third toe much longer than second, which is very little longer than fourth, the hind toe much shorter but strong; claws of moderate size, rather strong, arched, compressed, rather acute, that of the hind toe much larger, the edge of that of the third regularly pectinated.

Space between the bill and eye, and around the latter, bare, as is the lower half of the tibia. Plumage soft, generally loose. Feathers of the upper and hind part of the head elongated, tapering, decurved, about six of them larger and much longer; of the sides, and especially of the lower part of the neck, also much elongated and narrow. The feathers of the fore part of the back long and narrow-pointed, those behind extremely elongated, with long loose threadlike barbs; the rest of the back with short soft feathers. Wing of moderate length; primaries tapering but rounded, the third longest, second very little shorter, first and fourth

about equal ; secondaries broad and rounded, some of the inner as long as the longest primaries, when the wing is closed. Tail very short, small, slightly rounded, of twelve rather weak feathers.

Bill brownish-black on the greater part of the upper mandible, and on the sides of the lower mandible towards the point ; the rest yellow, as is the bare space before and around the eye. Iris bright red. Feet light yellowish-green, the anterior scutella dusky, as are the claws. The general colour of the upper parts is light purplish-blue ; the elongated feathers of the head and hind neck above of a fine reddish-purple, as are those of the lower part of the neck ; the six longest feathers of the head white. The long loose feathers of the back dull purplish-yellow, paler towards their extremities. Throat white, its lower part chestnut ; a line of white all the way down the fore part of the neck ; the longer feathers of the fore part of the breast dusky blue on their inner webs. The breast, abdomen, tibiae, and under wing-coverts, white ; the lower tail-coverts tipped with blue.

Length to end of the tail 27 inches, to end of wings 28, to end of claws $34\frac{1}{2}$; extent of wings 37 ; loose feathers from 4 to 5 inches beyond the tail ; wing from flexure $10\frac{3}{4}$; tail $3\frac{1}{2}$; bill along the back 4, along the edges 5 ; bare part of tibia $2\frac{1}{2}$; tarsus $4\frac{1}{8}$, middle toe $2\frac{1}{2}$, its claws $\frac{1}{2}$. Weight 1 lb.

The Adult Female is precisely similar to the male.

The Young, when newly hatched, are covered above with pale purplish-grey down, which is of greater length on the head, as in other species.

The young fully fledged have the neck and fore part of the back light brownish-red, the throat and lower parts white, as is the hind part of the back ; the quills, larger wing-coverts and tail, light purplish-blue. The feathers of the head, neck and back are not yet elongated. The bill nearly as in the adult, but the legs deep greenish-olive.

After the first moult, the feathers of the head, neck and back, are a little elongated, and begin to be tinged with the colours which they have when the bird is full grown. The red of the neck is changed for tints of blue and purple, as is that of the back, although remnants of it are still seen. The fore part of the neck is white, mixed with brownish-red ; the legs lighter.

THE FOOLISH GUILLEMOT.

URIA TROILE, LATH.

PLATE CCXVIII. MALE AND FEMALE.

THIS bird is seldom found farther south than the entrance of the Bay of New York, where, however, it appears only during severe winters, for being one of the most hardy inhabitants of the northern regions, its constitution is such as to enable it to bear without injury the rigours of their wintry climates. About the bays near Boston the Guillemots are seen every year in greater or less numbers, and from thence to the eastward they become gradually more abundant. A very old gunner whom I employed while at Boston, during the winter of 1832-3, assured me, that when he was a young man, this species bred on many of the rocky islands about the mouth of the bay there; but that for about twenty years back none remained after the first days of April, when they departed for the north in company with the Thick-billed Guillemot, the Common Auk, the Puffin, and the Eider and King Ducks, all of which visit these bays in hard weather. In the Bay of Fundy, the Foolish Guillemot is very numerous, and is known by the name of *Murre*, which it retains among all the eggers and fishermen of Newfoundland and Labrador, where it breeds in myriads. To those countries, then, I must lead you, good Reader, as there we can with ease study the habits of these birds.

Stay on the deck of the Ripley by my side this clear and cold morning. See how swiftly scuds our gallant bark, as she cuts her way through the foaming billows, now inclining to the right and again to the left. Far in the east, dark banks of low clouds indicate foul weather to the wary mariner, who watches the approach of a northern storm with anxiety. Suddenly the wind changes; but for this he has prepared; the topsails are snugged to their yards, and the rest are securely reefed. A thick fog obscures all around us. The waters suddenly checked in their former course, furiously war against those which now strike them in front. The uproar increases, the bark is tossed on every side; now a sweeping wave rushes against the bows, the vessel quivers, while down along her deck violently pour the waters, rolling from side to side, seeking for a place

by which they may escape. At this moment all about you are in dismay save the Guillemots. The sea is covered with these intrepid navigators of the deep. Over each tumultuous billow they swim unconcerned on the very spray at the bow of the vessel, and plunging as if with pleasure, up they come next moment at the rudder. Others fly around in large circles, while thousands contend with the breeze, moving directly against it in long lines, towards regions unknown to all, save themselves and some other species of sea birds.

The Guillemots pair during their migrations;—many of them at least do so. While on my way toward Labrador, they were constantly within sight, gambolling over the surface of the water, the males courting the females, and the latter receiving the caresses of their mates. These would at times rise erect in the sea, swell their throats, and emit a hoarse puffing guttural note, to which the females at once responded, with numerous noddings to their beaux. Then the pair would rise, take a round in the air, re-align, and seal the conjugal compact; after which they flew or swam together for the season, and so closely, that among multitudes on the wing or on the waves, one might easily distinguish a mated pair.

Not far from Great Macatina Harbour lie the Murre Rocks, consisting of several low islands, destitute of vegetation, and not rising high from the waters. There thousands of Guillemots annually assemble in the beginning of May, to deposit each its single egg, and raise its young. As you approach these islands, the air becomes darkened with the multitudes of birds that fly about; every square foot of the ground seems to be occupied by a Guillemot planted erect as it were on the granite rock, but carefully warming its cherished egg. All look toward the south, and if you are fronting them, the snowy white of their bodies produces a very remarkable effect, for the birds at some distance look as if they were destitute of head, so much does that part assimilate with the dark hue of the rocks on which they stand. On the other hand, if you approach them in the rear, the isle appears as if covered with a black pall.

Now land, and witness the consternation of the settlers! Each affrighted leaves its egg, hastily runs a few steps, and launches into the air in silence. Thrice around you they rapidly pass, to discover the object of your unwelcome visit. If you begin to gather their eggs, or, still worse, to break them, in order that they may lay others which you can pick up fresh, the Guillemots all alight at some distance, on the bosom of the deep, and anxiously await your departure. Eggs, green and

white, and almost of every colour, are lying thick over the whole rock ; the ordure of the birds mingled with feathers, with the refuse of half-hatched eggs partially sucked by rapacious Gulls, and with putrid or dried carcasses of Guillemots, produces an intolerable stench ; and no sooner are all your baskets filled with eggs, than you are glad to abandon the isle to its proper owners.

On one occasion, whilst at anchor at Great Macatina, one of our boats was sent for eggs. The sailors had eight miles to pull before reaching the Murre Islands, and yet ere many hours had elapsed, the boat was again alongside, loaded to a few inches of the gunwale, with 2500 eggs ! Many of them, however, being addle, were thrown overboard. The order given to the tars had been to bring only a few dozens ; but, as they said, they had forgotten !

The eggs are unaccountably large for the size of the bird, their average length being three inches and three-eighths, and their greatest breadth two inches. They are pyriform or elongated, with a slight compression towards the smaller end, which again rather swells and is rounded at the extremity. They afford excellent food, being highly nutritive and palatable, whether boiled, roasted, poached, or in omelets. The shell is rough to the touch, although not granulated. Some are of a lively verdigris colour, others of different tints, but all curiously splashed, as it were, with streaks or blotches of dark umber and brown. My opinion, however, is, that, when first dropped, they are always pure white, for on opening a good number of these birds, I found several containing an egg ready for being laid, and of a pure white colour. The shell is so firm that it does not easily break, and I have seen a quantity of these eggs very carelessly removed from a basket into a boat without being damaged. They are collected in astonishing quantities by "the eggers," to whom I have already given a character, and sent to distant markets, where they are sold at from one to three cents each.

Although the Guillemots are continually harassed, their eggs being carried off as soon as they are deposited, and as long as the birds can produce them, yet they return to the same islands year after year, and, notwithstanding all the efforts of their enemies, multiply their numbers.

The Foolish Guillemot, as I have said, lays only a single egg, which is the case with the Thick-billed Guillemot also. The Razor-billed Auk lays two, and the Black Guillemot usually three. I have assured myself of these facts, not merely by observing the birds sitting on their eggs,

but also by noticing the following circumstances. The Foolish Guillemot, which lays only one, plucks the feathers from its abdomen, which is thus left quite bare over a roundish space just large enough to cover its single egg. The Thick-billed Guillemot does the same. The Auk, on the contrary, forms two bare spots, separated by a ridge of feathers. The Black Guillemot, to cover her three eggs, and to warm them all at once, plucks a space bare quite across her belly. These observations were made on numerous birds of all the species mentioned. In all of them, the males incubate as well as the females, although the latter are more assiduous. When the Guillemots are disturbed, they fly off in silence. The Auks, on the contrary, emit a hoarse croaking note, which they repeat several times, as they fly away from danger. The Foolish Guillemot seldom if ever attempts to bite, whereas the Razor-billed Auk bites most severely, and clings to a person's hand until choked. The plumage of all the birds of this family is extremely compact, closely downed at the root, and difficult to be plucked. The fishermen and egggers often use their skins with the feathers on as "comforters" round their wrists. The flesh is dark, tough, and not very palatable; yet many of these birds are eaten by the fishermen and sailors.

The young, which burst the egg about the beginning of July, are covered with down of a brownish-black colour. When eight or ten days old they are still downy, but have acquired considerable activity. As they grow up, they become excessively fat, and seem to be more at ease on the water than on the land. About the middle of August they follow their parents to the open sea, the latter being then seldom able to fly, having dropped their quills; and by the middle of September scarcely any of these birds are to be found on or near the islands on which they breed, although great numbers spend the winter in those latitudes.

There is no perceptible difference between the sexes as to colour, but the males are larger than the females. The white line that encircles the eye and extends toward the hind head is common to both sexes, but occurs only in old birds. Thousands of these Guillemots however breed, without having yet acquired it, there merely being indications of it to be seen on parting the feathers on the place, where there is a natural division.

The flight of the Foolish Guillemot is rapid and greatly protracted, being performed by quick and unintermitted beatings. They move through the air either singly or in bands, in the latter case seldom keep-

ing any very regular order. Sometimes they seem to skim along the surface for miles, while at other times they fly at the height of thirty or forty yards. They are expert divers, using their wings like fins, and under water looking like winged fishes. They frequently plunge at the flash of the gun, and disappear for a considerable time. Before rising, they are obliged to run as it were on the water, fluttering for many yards before they get fairly on wing.

Those which I kept alive for weeks on board the Ripley, walked about and ran with ease, with the whole length of their tarsus touching the deck. They took leaps on chests and other objects to raise themselves, but could not fly without being elevated two or three feet, although when they are on the rocks, and can take a run of eight or ten yards, they easily rise on wing.

The islands on which the Guillemots breed on the coast of Labrador, are flattish at top, and it is there, on the bare rock, that they deposit their eggs. I saw none standing on the shelvings of high rocks, although many breed in such places in some parts of Europe. Their food consists of small fish, shrimps, and other marine animals; and they swallow some gravel also.

URIA TROILE, *Lath. Ind. Ornith.* vol. ii. p. 796.—*Ch. Bonaparte*, *Synops. of Birds of the United States*, p. 424.—*Sewins. and Richards. Fauna-Bor. Amer.* vol. ii. p. 477.

FOOLISH GUILLEMOT, OR MURRE, *Nuttall, Manual*, vol. ii. p. 526.

Adult Male, in summer. Plate CCXVIII.

Bill of moderate length, rather stout, tapering, compressed, acute. Upper mandible with the dorsal line slightly curved, the ridge narrow, broader at the base, the sides sloping, the edges short and inflected, the tip a little decurved with a slight notch. Nasal groove broad, feathered; nostrils at its lower edge, sub-basal, lateral, longitudinal, linear, pervious. Lower mandible, with the angle medial, narrow, the dorsal line sloping upwards, and straight, the back very narrow, the sides nearly flat, the edges sharp and inflected.

Head oblong, depressed, narrowed before. Eyes rather small. Neck short and thick. Body stout, rather depressed. Wings rather small. Feet short, placed far behind; the greater part of the tibia concealed, its lower portion bare; tarsus short, stout, compressed, anteriorly sharp, and

covered with a double row of scutella, the sides with angular scales ; toes of moderate length, the first wanting, the third nearly longest, the fourth longer than the second ; all covered above with numerous scutella, webbed, the lateral ones with small margins ; claws small, slightly arched, compressed, rather acute, the middle one larger, with a dilated inner edge.

Plumage dense, very soft, blended ; on the head very short. Wings rather short, narrow, acute ; primary quills curved, tapering, the first longest, the second little shorter, the rest rapidly graduated ; secondaries short, incurved, broad, rounded. Tail very short, rounded, of twelve narrow feathers.

Bill black ; inside of mouth gamboge-yellow. Iris dark brown. Feet black. The general colour of the plumage is greyish-black on the upper parts ; the sides of the head and upper part of the neck black, tinged with brown. A white bar across the wing, formed by the tips of the secondary quills, and a line of the same encircling the eye, and extending behind it. The lower parts white.

Length to end of tail $17\frac{1}{2}$ inches, to end of claws $19\frac{1}{4}$, to end of wings $17\frac{1}{2}$; extent of wings 30 inches ; wing from flexure $7\frac{1}{2}$; tail 2 ; tarsus $1\frac{1}{2}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$. Weight 2 lb.

Adult Female. Plate CCXVIII. Fig. 2.

The Female is similar to the male, and, when mature, has the white line round and behind the eye.

THE BLACK GUILLEMOT.

URIA GRYLLE, LATH.

PLATE CCXIX. ADULT IN SUMMER, ADULT IN WINTER, AND YOUNG.

It was a frightful thing to see my good Captain, HENRY EMERY, swinging on a long rope upon the face of a rocky and crumbling eminence, at a height of several hundred feet from the water, in search of the eggs of the Black Guillemot, with four or five sailors holding the rope above, and walking along the edge of the precipice. I stood watching the motions of the adventurous sailor. When the friction of the rope by which he was suspended loosened a block, which with awful crash came tumbling down from above him, he, with a promptness and dexterity that appeared to me quite marvellous, would, by a sudden jerk, throw himself aside to the right or left, and escape the danger. Now he would run his arm into a fissure, which, if he found it too deep, he would probe with a boat-hook. Whenever he chanced to touch a bird, it would come out whirring like a shot in his face; while others came flying from afar toward their beloved retreats with so much impetuosity as almost to alarm the bold rocksmen. After much toil and trouble he procured only a few eggs, it not being then the height of the breeding season. You may imagine, good Reader, how relieved I felt when I saw Mr EMERY drawn up, and once more standing on the bold eminence waving his hat as a signal of success. This happened in one of the Magdelaine Islands, in the Gulf of St Lawrence.

During severe winters, I have seen the Black Guillemot playing over the waters as far south as the shores of Maryland. Such excursions, however, are of rare occurrence, and it is seldom that any of these birds are to be seen until you reach the Bay of Boston. About the different entrances of the Bay of Fundy, this species is a constant resident, and many individuals breed in fissures, at a moderate height above the water, on the rocky shores of the Island of Grand Manan, and others in the same latitude. Proceeding farther toward the north-east, we found them on Jesticoe Island, and wherever else we happened to touch on our way to Labrador, in which country there is a regular nursery of these birds.

Unlike the Foolish and Thick-billed Guillemots, or the Razor-billed

Auk, they do not confine themselves to any particular spot, but take up their abode for the season in any place that presents suitable conveniences. Wherever there are fissures in the rocks, or great piles of blocks with holes in their interstices, there you may expect to find the Black Guillemot.

Whether European writers have spoken of this species at random, or after due observation, I cannot say. All I know is, that every one of them whose writings I have consulted, says that the Black Guillemot lays only *one egg*. As I have no reason whatever to doubt their assertion, I might be tempted to suppose that our species differs from theirs, were I not perfectly aware that birds in different places will construct different nests, and lay more or fewer eggs. Our species always deposits three, unless it may have been disturbed; and this fact I have assured myself of by having caught the birds in more than twenty instances sitting on that number. Nay, on several occasions, at Labrador, some of my party and myself *saw* several Black Guillemots sitting on eggs in the same fissure of a rock, where every bird had three eggs under it, a fact which I communicated to my friend THOMAS NUTTALL. What was most surprising to me was, that even the fishermen there thought that this bird laid only a single egg; and when I asked them how they knew, they simply and good-naturedly answered that they had heard so. Thus, Reader, I might have been satisfied with the sayings of others, and repeated that the bird in question lays one egg; but instead of taking this easy way of settling the matter, I found it necessary to convince myself of the fact by my own observation. I had therefore to receive many knocks and bruises in scrambling over rugged crags and desolate headlands; whereas, with less incredulity, I might very easily have announced to you from my easy chair in Edinburgh, that the Black Guillemots of America lay only a single egg. No true student of nature ought ever to be satisfied without personal observation when it can be obtained. It is the "American Woodsman" that tells you so, anxious as he is that you should enjoy the pleasure of studying and admiring the beautiful works of Nature.

To satisfy yourself as to the correctness of the statements which he here lays before you, go to the desolate shores of Labrador. There, in the vernal month of June, place yourself on some granite rock, against the base of which the waves dash in impotent rage; and ere long you will see the gay Guillemot coming from afar by the side of its mate.

They shoot past you on fluttering wings, and suddenly disappear. Go to the place ; lay yourself down on the dripping rock, and you will be sure to see the birds preparing their stony nest, for each has brought a smooth pebble in its bill. See how industriously they are engaged in raising this cold fabric into the form of a true nest, before the female lays her eggs, so that no wet may reach them, from the constant trickling of the waters beneath. Up to the height of two or three inches the pebbles are gradually raised, the male stands by his beloved ; and some morning when you peep into the crevice, you observe that an egg has been deposited. Two days after you find the number complete.

A closet-naturalist was quite surprised, I have been told, when he read in one of my volumes that Grakles form no nests in one portion of the United States, being there contented with merely dropping their eggs in the bottom of a Woodpecker's hole ; while in the Middle States the same species forms a very snug nest. That *his* astonishment was great I do not in the least doubt, especially as I know how surprised I was to find the *Larus argentatus* breeding on fir-trees forty feet above the ground, and to see three eggs, instead of one, placed on a bed of small pebbles beautifully arranged, and every one belonging to a single pair of Black Guillemots. Yet, good Reader, as I have also been told, the same person had no doubt whatever that ermines turn from brown to white in winter, that snakes and crabs cast off their skins and shells, and that " fleas are not lobsters ;" but then the reason of his belief was simply that he had read of these things ; and his doubts as to the Grakles arose from the facts having been recently reported by a stranger from the " far west," who, it seems, talked of things which he had not read of before.

Whilst in Labrador, I was delighted to see with what judgment the Black Guillemot prepares a place for its eggs. Whenever the spot chosen happens to be so situated as to preclude damp, not a pebble does the bird lay there, and its eggs are placed on the bare rock. It is only in what I call cases of urgency that this trouble is taken. About fifty or sixty pebbles or bits of stone are then used, and the number is increased or diminished according to circumstances.

The eggs of this species, which appear disproportionately large, measure two inches and three eighths in length, by an inch and five-eighths in breadth. Their form is regular ; they are rather rough to the touch, although not granulated ; their ground colour an earthy white, thickly

blotched with very dark purplish-black, the markings larger and closer towards the great end, which, however, is generally left free of them. The shell is much thinner than that of the egg of the Foolish Guillemot or Razor-billed Auk. As an article of food they are excellent, being delicate and nutritious.

The parents pluck the feathers from a space across the lower part of their belly, as soon as incubation commences; and this bare place, when the bird is taken alive, it immediately conceals by drawing the feathers of the upper part of the abdomen over it, as if it were anxious that it should not be observed. When driven from the nest, the Black Guillemot at once runs out of its hiding-place and flies to the water, on which it plays, bathes as it were, dives a few times, and anxiously watches your retreat, after which it soon returns and resumes the arduous task of incubation.

The young, which are at first quite black, are covered with soft down, and emit, although in an under tone, the same lisping notes as their parents. Their legs, feet, and bill are black. The red colour of the legs of the old birds is much brighter during the breeding-season than at any other time, and the mouth also is bright red. About the first of August the Guillemites lead their progeny to the water, and although at this time neither old nor young are able to fly, they dive deeply and with great ease, which enables them to procure abundance of food, for at this season, lints, shrimps, and marine insects are plentiful in all the waters.

While in Labrador, I made a severe experiment to ascertain how long the Black Guillemot could live without food,—an experiment on which I have never since been able to think, without some feeling of remorse. I confined a pair of them in the fissure of a rock for many days in succession. After the entrance was securely closed, I left the place, and for eight days the wind blew so hard that no boat was safe on the waters without the harbour. Many a time I thought of the poor captives, and at last went to their retreat one rainy afternoon, over a great swell of the sea. The entrance of the fissure was opened, and a stick pushed into the hole, when I had the pleasure of seeing both birds, although apparently in a state of distress, run out by me, and at once fly to the water.

The flight of the Black Guillemot is rapid and continued. As they proceed in their course, they alternately shew the black of their lower parts and the white of their wings. They walk on the rocks with considerable ease, using short steps, and whenever they wish to remove from one

crag or block to another, make use of their wings. When their nests are very high above the water, they fly directly into them; and from such heights, if necessity demands it, they at once dive towards the water.

I kept many alive on board the Ripley. They ran on the floor in an erect position for a few yards, fell down on their breasts, rose again, and continued their exertions to escape, until they got fairly concealed behind a chest or barrel.

The winter plumage of this species differs so greatly from that of summer, that I have been induced to present you with a figure of the bird in both states. It is difficult to perceive any external difference between the sexes, only the males are rather larger than the females. Their flesh, although black and tough, is not very unpalatable.

The trachea is flattened, with numerous close, transparent rings. The gullet, as in all the other species of this genus, is very dilatable. The gizzard, which is small, has its inner membrane thin and of a yellow colour. The intestines are about the thickness of a goose quill, and measure two feet eight inches in length.

URIA GREYLL, *Lath. Ind. Ornith.* vol. ii. p. 797.—*Ch. Bonaparte*, *Synops. of Birds of the United States*, p. 423.—*Swains. and Richards. Fauna Boreali-Americana*, part ii. p. 478.

BLACK GUILLEMOT, *Nuttall, Manual*, vol. ii. p. 523.

Adult in Summer. Plate CCXIX. Fig. 1.

Bill shorter than the head, straight, rather stout, tapering, compressed, acute. Upper mandible with the dorsal line nearly straight and sloping, towards the tip slightly arched, the sides sloping and towards the end a little convex, the edges sharp and slightly inflected. Nostrils basal, lateral, linear, partially concealed by the feathers. Lower mandible with the angle long and very narrow, the dorsal line ascending, straight. the sides sloping upwards, slightly convex, flat at the base, the edges sharp and inflected, the tip acute.

Head of moderate size, oblong; neck short; body full, depressed; wings rather small. Feet placed far behind, short, of moderate size; tarsus short, compressed, anteriorly scutellate, laterally covered with reticulated angular scales; toes rather slender, scutellate above, connected by entire reticulated webs, the outer and inner with a small marginal

membrane ; the first toe wanting, the third and fourth about equal, the second shortest ; claws small, arched, compressed, rather obtuse, that of the middle toe with a dilated thin inner edge.

Plumage soft, close, blended and velvety ; feathers of the head very short, on the back broadly rounded, of the lower parts more elongated. Wings rather small ; primary quills curved, the first longest, the second little shorter, the rest rather rapidly diminishing ; secondary incurved, broadly rounded. Tail short, narrow, rounded, of twelve rather pointed feathers.

Bill black, inside of mouth vermilion tinged with carmine. Iris deep brown. Feet of the same colour as the mouth, claws black. The general colour of the plumage is deep black, on the upper part tinged with green, on the lower with red, there being only a large patch on each wing, including the secondary coverts and some of the smaller feathers pure white, as are the lower wing-coverts. The quills and tail are tinged with brown.

Length to end of tail $13\frac{7}{8}$ inches, to end of claws $16\frac{1}{4}$, to end of wings 13 ; extent of wings $21\frac{1}{2}$; wing from flexure $6\frac{1}{2}$, tail 2 ; bill along the ridge $1\frac{1}{4}$, along the gape $1\frac{7}{8}$; tarsus $1\frac{9}{16}$, middle toe $1\frac{1}{2}$, its claw $\frac{3}{8}$. Weight $13\frac{1}{2}$ oz.

Adult in winter. Plate CCXIX. Fig. 2.

The bill and iris are of the same colour as in summer, but the red of the feet is paler. The general colour of the plumage is white, the sides of the head, the neck all round, the lower parts, and the rump being of that colour, more or less shaded with grey. The upper part of the head obscurely mottled with greyish-black ; the back and scapulars black, each feather tipped with greyish-white, those of the latter more broadly. The wings and tail brownish-black, the former with the conspicuous white patch, as in summer.

Young a few days old. Plate CCXIX. Fig. 3.

Bill and feet black, the former tinged with red ; iris dark brown. The general colour of the soft thick down with which the whole body is covered is brownish-black.

THE PIPING PLOVER.

CHARADRIUS MELODUS, ORD.

PLATE CCXX. MALE AND FEMALE.

DURING the spring and summer months, this pretty little Plover is found on the sandy beaches of our extensive coasts, from the southern point of the Floridas to the confines of Maine. As you proceed towards Labrador, you find it in every suitable place, as far as the Magdeleine Islands, on the sands of which I saw many that were paired and had eggs on the 11th of June 1833. It breeds on all parts of the eastern coast of the United States, wherever the locality is adapted to its habits. On the 3d of May, this bird was found with eggs on the Keys of the Floridas : about a month later, you may meet with it in the States of Maryland, New Jersey, and New York. Those which leave the south at the approach of spring, return to it about October : and during the whole winter you may find them on the sandy beaches, from South Carolina to the western coast of the Floridas. The species, therefore, may be considered as resident with us.

While migrating eastward, the Piping Plovers proceed in pairs ; and should one of these on its way find a convenient place for breeding, and remain there, several others are often induced to take up their abode in the neighbourhood. In autumn, they go in flocks of twenty or thirty individuals, and at times associate with other species, particularly the Turnstone, in whose company I have found them abundantly on the coast of Florida, in the winter months. They never proceed to any distance inland, even along the sandy margins of our largest rivers ; nor are they seen along very rocky shores or places covered with deep mud.

The favourite breeding stations of this species are low islands, mostly covered with drifting sand, having a scanty vegetation, and not liable to inundation. In such a place many pairs may be found, with nests thirty or forty yards apart. The nest is sometimes placed at the foot of a tuft of withered grass, at other times in an exposed situation. A cavity is merely scooped out in the soil, and there are deposited in it four eggs, which are in a great measure hatched by the heat which the sand acquires under the influence of a summer sun ; but in rough weather, and always

by night, the female is careful to sit upon them. Her mate is extremely attentive to her during the period of incubation, and should you happen to stroll near the nest, you are sure to meet him at his station. The eggs, which are four, and have their points placed together, measure one inch and one-eighth by seven and a half eighths, are pyriform, broad, and flatly rounded at the larger end, and tapering directly to the smaller, which is also rounded. They are of a pale bluish-buff colour, sprinkled and lined nearly all over with dark red, brown, and black. Only one brood is raised in the season. The young, which go abroad immediately after they are hatched, run with remarkable speed, and, at the least note of the parent bird indicative of danger, squat so closely on the sand, that you may walk over them without seeing them. Their downy covering is grey mottled with brown; their bill almost black. If taken up in the hand, they emit a soft plaintive note resembling that of the old bird. The strange devices which their parents at this time adopt to ensure their safety, cannot fail to render the student of nature very unwilling to carry them off without urgent necessity. You may see the mother, with expanded tail and wings trailing on the ground, limping and fluttering before you, as if about to expire. It is true you know it to be an artifice, but it is an artifice taught by maternal love; and, when the bird has fairly got rid of her unwelcome visitor, and you see her start up on her legs, stretch forth her wings, and fly away piping her soft note, you cannot but participate in the joy that she feels.

The flight of this Plover is extremely rapid, as well as protracted. It passes through the air by glidings and extended flappings, either close over the sand, or high above the shores. On the ground, few birds are swifter of foot: It runs in a straight line before you, sometimes for twenty or thirty yards, with so much celerity, that unless you have a keen eye, it is almost sure to become lost to your view. Then, in an instant it stops, becomes perfectly motionless, and if it perceives that you have not marked it, squats flat on the sand, which it so much resembles in colour, that you may as well search for another, as try to find it again.

Their notes, which are so soft and mellow as nearly to resemble those of the sweetest songster of the forest, reach your ear long before you have espied the Piping Plover. Now and then, these sounds come from perhaps twenty different directions, and you are perplexed, as well as delighted. At the approach of autumn, this species becomes almost mute,

the colour of the plumage fades ; and it is then very difficult for you to perceive one that may be only a few yards off, until it starts and runs or flies before you. At this season they are less shy than before.

During winter they are generally in good condition, and their flesh is very delicate and savoury, although, on account of their small size, they seldom draw the sportsman after them. Their food consists of marine insects, minute shell-fish, and small sand worms.

RINGED PLOVER, *CHARADRIUS HIATICULA*, var. *Wils.* Amer. Ornith. vol. v. p. 30. pl. 37. fig. 3.

CHARADRIUS MELODUS, *Ch. Bonaparte*, Synops. of Birds of the United States, p. 296.

PIPING RINGED PLOVER, *Nuttall*, Manual, vol. ii. p. 18.

Male in Summer. Plate CCXX. Fig. 1.

Bill half the length of the head, straight, somewhat cylindrical. Upper mandible with the dorsal line straight to the middle, then bulging a little and curving to the tip, which projects beyond that of the lower mandible, the sides flat and sloping at the base, convex towards the end, the edges sharp and overlapping. Nasal groove extended to the middle of the bill, filled with a bare membrane ; nostrils basal, linear, in the lower part of the membrane, open, and pervious. Lower mandible with the angle rather short, rounded, the sides at the base sloping outwards and flat, the dorsal line ascending and slightly convex, the edges sharp and inflected.

Head of moderate size, oblong, compressed, the forehead rounded. Eyes large. Neck short. Body rather slender, ovate. Wings long. Feet of moderate length, slender ; tibia bare a little above the joint ; tarsus rather compressed, covered all round with reticulated angular scales ; toes slender ; the hind toe wanting ; third or middle toe longest, outer toe considerably longer than inner, all scutellate above and marginate, the outer connected with the middle by a short membrane ; claws small, compressed, obtuse, the rather blunt inner edge of the middle claw a little dilated.

Plumage soft and blended ; the feathers rounded, those on the back somewhat distinct. Wings long and pointed ; primary quills tapering, the first longest, the second a little shorter, the rest rapidly graduated ; inner secondaries tapering and elongated, so as nearly to equal the longest

primaries. Tail of moderate length, slightly rounded, of twelve rather narrow feathers, which taper a little towards their rounded extremities.

Bill orange in its basal half, the rest black. Iris reddish-brown; margins of eyelids orange. Feet brownish-yellow; claws dusky. Forehead, sides of the face, throat, and the whole under parts, pure white. Upper parts pale brownish-grey. A black band across the upper part of the forehead, another surrounds the lower part of the neck, broad on the sides, but narrow above and below, where it is formed merely by the tips of some of the feathers. Above this is a white band over the hind neck, also very narrow above. Primaries dusky, each with a large white patch on a portion of the outer, and on the greater part of the inner web; secondaries of a lighter brown, white on the inner webs, some of those nearest the body entirely white; the five innermost like the back; most of the quills are more or less tipped with white, the primary and secondary coverts more distinctly so. The tail-feathers may be described as white; the second has a brown spot on the inner web towards the end, the third a larger spot or band on both webs, and the colour enlarges on the rest, until the middle feathers are nearly all dusky brown.

Length to end of tail $7\frac{1}{4}$ inches, to end of claws 7, to end of wings $6\frac{3}{4}$; extent of wings $15\frac{1}{2}$; wing from flexure $4\frac{1}{2}$; tail $2\frac{9}{12}$; bill along the back $\frac{1}{2}$, along the edge of lower mandible $\frac{7}{12}$; tarsus $1\frac{9}{12}$; middle toe $\frac{7}{12}$, its claw $\frac{9}{12}$. Weight 3 oz.

Female in Summer. Plate CCXX. Fig. 2.

The Female is considerably smaller, but resembles the male in colouring, only the dark bands on the forehead and neck are narrower, and of a dusky brown tint.

Length to end of tail 7 inches, extent of wings $14\frac{1}{4}$.

The young, previous to their first moult, have the bill black, the feet flesh-coloured, with dusky claws. The colours of the plumage are nearly the same as in the adult, but there is no dark band on the forehead, and that on the lower neck is merely indicated by a brownish-grey patch on each side. The neck is surrounded by a collar of downy white feathers, and the tips and margins of the feathers of the head and back are pale ochre.

THE WRECKERS OF FLORIDA.

LONG before I reached the lovely islets that border the south-eastern shores of the Floridas, the accounts I had heard of "The Wreckers" had deeply prejudiced me against them. Often had I been informed of the cruel and cowardly methods which it was alleged they employed to allure vessels of all nations to the dreaded reefs, that they might plunder their cargoes, and rob their crews and passengers of their effects. I therefore could have little desire to meet with such men under any circumstances, much less to become liable to receive their aid; and with the name of Wreckers, there were associated in my mind ideas of piratical depredation, barbarous usage, and even murder.

One fair afternoon, while I was standing on the polished deck of the United States' revenue cutter the *Marion*, a sail hove in sight, bearing in an opposite course, and "close-hauled" to the wind. The gentle rake of her masts, as she rocked to and fro in the breeze, brought to my mind the wavings of the reeds on the fertile banks of the Mississippi. By-and-by the vessel altering her course, approached us. The *Marion*, like a sea-bird, with extended wings, swept through the waters, gently inclining to either side, while the unknown vessel leaped as it were from wave to wave, like the dolphin in eager pursuit of his prey. In a short time, we were gliding side by side, and the commander of the strange schooner saluted our captain, who promptly returned the compliment. What a beautiful vessel! we all thought; how trim, how clean-rigged, and how well manned! She swims like a duck; and now with a broad sheer, off she makes for the reefs, a few miles under our lee. There, in that narrow passage, well known to her commander, she rolls, tumbles, and dances, like a giddy thing, her copper sheathing now gleaming, and again disappearing under the waves. But the passage is thrid, and now, hauling on the wind, she resumes her former course, and gradually recedes from the view. Reader, it was a Florida Wrecker!

When at the Tortugas, I paid a visit to several vessels of this kind, in company with my excellent friend ROBERT DAY, Esq. We had observed the regularity and quickness of the men then employed at their arduous tasks, and as we approached the largest schooner, I admired her form so well adapted to her occupation, her great breadth of beam, her light

draught, the correctness of her water-line, the neatness of her painted sides, the smoothness of her well-greased masts, and the beauty of her rigging. We were welcomed on board with all the frankness of our native tars. Silence and order prevailed on her decks. The commander and the second officer led us into a spacious cabin, well lighted, and furnished with every convenience for fifteen or more passengers. The former brought me his collection of marine shells, and whenever I pointed to one that I had not seen before, offered it with so much kindness, that I found it necessary to be careful in expressing my admiration of any particular shell. He had also many eggs of rare birds, which were all handed over to me, with an assurance that before the month should expire, a new set could easily be procured, "for," said he, "we have much idle time on the reefs at this season." Dinner was served, and we partook of their fare, which consisted of fish, fowl, and other materials. These rovers, who were both from "down east," were stout active men, cleanly and smart in their attire. In a short time, we were all extremely social and merry. They thought my visit to the Tortugas, in quest of birds, was rather "a curious fancy;" but, notwithstanding, they expressed their pleasure while looking at some of my drawings, and offered their services in procuring specimens. Expeditions far and near were proposed, and on settling that one of them was to take place on the morrow, we parted friends.

Early next morning, several of these kind men accompanied me to a small key called Booby Island, about ten miles distant from the light-house. Their boats were well manned, and rowed with long and steady strokes, such as whalers and men-of-war's men are wont to draw. The captain sang, and at times, by way of frolic, ran a race with our own beautiful bark. The Booby Isle was soon reached, and our sport there was equal to any we had elsewhere. They were capital shots, had excellent guns, and knew more about boobies and noddies than nine-tenths of the best naturalists in the world. But what will you say when I tell you that the Florida Wreckers are excellent at a deer hunt, and that at certain seasons, "when business is slack," they are wont to land on some extensive key, and in a few hours procure a supply of delicious venison.

Some days afterwards, the same party took me on an expedition in quest of sea-shells. There we were all in the water at times to the waist, and now and then much deeper. Now they would dip, like ducks, and on emerging would hold up a beautiful shell. This occupation they to enjoy above all others.

The duties of the *Marion* having been performed, intimation of our intended departure reached the Wreckers. An invitation was sent to me to go and see them on board their vessels, which I accepted. Their object on this occasion was to present me with some superb corals, shells, live turtles of the Hawk-billed species, and a great quantity of eggs. Not a "pecayon" would they receive in return, but putting some letters in my hands, requested me to "be so good as put them in the mail at Charleston," adding that they were for their wives "down east." So anxious did they appear to be to do all they could for me, that they proposed to sail before the *Marion*, and meet her under weigh, to give me some birds that were rare on the coast, and of which they knew the haunts. Circumstances connected with "the service" prevented this, however; and with sincere regret, and a good portion of friendship, I bade these excellent fellows adieu. How different, thought I, is often the knowledge of things acquired by personal observation, from that obtained by report!

I had never before seen Florida Wreckers, nor has it since been my fortune to fall in with any; but my good friend, Dr BENJAMIN STROBEL, having furnished me with a graphic account of a few days which he spent with them, I shall present you with it in his own words.

"On the 12th day of September, while lying in harbour at Indian Key, we were joined by five wrecking vessels. Their licences having expired, it was necessary to go to Key West to renew them. We determined to accompany them the next morning, and here it will not be amiss for me to say a few words respecting these far-famed Wreckers, their captains and crews. From all that I had heard, I expected to see a parcel of dirty, pirate-looking vessels, officered and manned by a set of black-whiskered fellows, who carried murder in their very looks. I was agreeably surprised on discovering that the vessels were fine large sloops and schooners, regular clippers, kept in first-rate order. The Captains generally were jovial, good-humoured sons of Neptune, who manifested a disposition to be polite and hospitable, and to afford every facility to persons passing up and down the Reef. The crews were hearty, well-drest, and honest-looking men.

"On the 13th, at the appointed hour, we all set sail together, that is, the five Wreckers and the schooner *Jane*. As our vessel was not noted for fast-sailing, we accepted an invitation to go on board of a Wrecker. The fleet got under weigh about eight o'clock in the morning, the wind light but fair, the water smooth, and the day fine. I can scarcely find

words to express the pleasure and gratification which I this day experienced. The sea was of a beautiful soft, pea-green colour, smooth as a sheet of glass, and as transparent, its surface agitated only by our vessels as they parted its bosom, or by the Pelican in pursuit of his prey, which rising for a considerable distance in the air, would suddenly plunge down with distended mandibles and secure his food. The vessels of our little fleet, with every sail set that could catch a breeze, and the white foam curling round the prows, glided silently along, like islands of fitting shadows, on an immovable sea of light. Several fathoms below the surface of the water, and under us, we saw great quantities of fish diving and sporting among the sea-grass, sponges, sea-feathers, and corals, with which the bottom was covered. On our right hand were the Florida Keys, which, as we made them in the distance, looked like specks upon the surface of the water, but as we neared them, rose to view as if by enchantment, clad in the richest livery of spring, each variety of colour and hue rendered soft and delicate by a clear sky and a brilliant sun overhead. All was like a fairy scene; my heart leaped up in delighted admiration, and I could not but exclaim in the language of Scott,

“ Those seas behold,
Round thrice an hundred islands rolled.”

The trade-wind played around us with balmy and refreshing sweetness; and, to give life and animation to the scene, we had a contest for the mastery between all the vessels of the fleet, while a deep interest was excited in favour of this or that vessel, as she shot ahead, or fell astern.

About three o'clock in the afternoon, we arrived off the Bay of Honda. The wind being light, and no prospect of reaching Key West that night, it was agreed that we should make a harbour here. We entered a beautiful basin and came to anchor about four o'clock. Boats were got out, and several hunting parties formed. We landed, and were soon on the scent, some going in search of shells, others of birds. An Indian, who had been picked up somewhere along the coast by a Wrecker, and who was employed as a hunter, was sent ashore in search of venison. Previous to his leaving the vessel, a rifle was loaded with a single ball, and put into his hands. After an absence of several hours, he returned with two deer, which he had killed at a single shot. He watched until they were both in range of his gun, side by side, when he fired and brought them down.

All hands having returned, and the fruits of our excursion being collected, we had wherewithal to make an abundant supper. Most of the game was sent on board the largest vessel, where we proposed supping. Our vessels were all lying within hail of each other, and as soon as the moon arose, boats were seen passing from vessel to vessel, and all were busily and happily engaged in exchanging civilities. One could never have supposed that these men were professional rivals, so apparent was the good-feeling that prevailed among them. About nine o'clock we started for supper; a number of persons had already collected, and as soon as we arrived on board the vessel, a German sailor, who played remarkably well on the violin, was summoned on the quarter-deck, when all hands, with a good will, cheerily danced to lively airs until supper was ready. The table was laid in the cabin, and groaned under its load of venison, wild ducks, pigeons, curlews, and fish. Toasting and singing succeeded the supper, and among other curious matters introduced, the following song was sung by the German fiddler, who accompanied his voice with his instrument. He is said to be the author of the song. I say nothing of the poetry, but merely give it as it came on my ear. It is certainly very characteristic.

THE WRECKER'S SONG.

Come ye, goot people, von and all,
Come listen to my song :
A few remarks I have to make,
Which vont be very long.
'Tis of our vessel stout and goot,
As ever yet was built of woot,
Along the reef where the breakers roar,
De Wreckers on de Florida shore !

Key Tavernier's our rendezvous ;
At anchor there we lie,
And see the vessels in the Gulf,
Carelessly passing by.
When night comes on we dance and sing,
Whilst the current some vessel is floating in ;
When day-light comes, a ship's on shore,
Among de rocks where de breakers roar.

When day-light dawns, we're under weigh,
And every sail is set,
And if the wind it should prove light,
Why then, our sails we wet.
To gain her first each eager strives,
To save de cargo and de people's lives,
Amongst de rocks where de breakers roar,
De Wreckers on de Florida shore.

When we get 'longside, we find she's bilged :
We know vel vat to do,
Save de cargo dat we can,
De sails and rigging too ;
Den down to Key West we soon vill go,
When quickly our salvage we shall know ;
When every ting it is fairly sold,
Our money down to us it is told.

Den one week's cruize we'll have on shore,
Before we do sail again,
And drink success to de sailor lads
Dat are ploughing of de main.
And when you are passing by dis way,
On the Florida Reef should you chance to stray,
Why, we will come to you on de shore,
Amongst de rocks where de breakers roar.

Great emphasis was laid upon particular words by the singer, who had a broad German accent. Between the verses he played a symphony, remarking, "Gentlemens, I makes dat myself." The chorus was trolled by twenty or thirty voices, which, in the stillness of the night, produced no unpleasant effect.

THE MALLARD.*ANAS BOSCHAS*, LINN.**PLATE CCXXI. MALES AND FEMALES.**

ALTHOUGH it is commonly believed that the Mallard is found abundantly everywhere in the United States, I have received sufficient proof to the contrary. If authors had acknowledged that they state so on report, or had said that in the tame state the bird is common, I should not have blamed them. According to my observation, and I may be allowed to say that I have had good opportunities, this valuable species is extremely rare in the wild state, in the neighbourhood of Boston in Massachusetts; and in this assertion, I am supported by my talented and amiable friend Mr NUTTALL, who has resided there for many years. Farther eastward, this bird is so rare that it is scarcely known, and not one was seen by myself or my party beyond Portland in Maine. On the western coast of Labrador none of the inhabitants that we conversed with had ever seen the Mallard, and in Newfoundland the people were equally unacquainted with it, the species being in those countries replaced by the Black Duck, *Anas fusca*. From New York southward, the Mallards become more plentiful, and numbers of them are seen in the markets of Philadelphia, Baltimore, Richmond in Virginia, and other towns. Although they are very abundant in the Carolinas and Floridas, as well as in Lower Louisiana, they are much more so in the Western Country. The reason of this is merely that the Mallard, unlike the sea ducks, is rarely seen on salt water, and that its course from the countries where it chiefly breeds is across the interior of the continent. From our great lakes, they spread along the streams, betake themselves to the ponds, wet meadows, submersed savannahs, and inland swamps, and are even found in the thick beech woods, in early autumn, and indeed long before the males have acquired the dark green colour of the head. Many of them proceed beyond the limits of the United States.

It would be curious to know when this species was first domesticated; but, Reader, the solution of such a question is a task on which I shall not venture. In the domestic state every body knows the Mallard. When young it affords excellent food, and when old lays eggs A bed

made of its feathers is far preferable to the damp earth of the camp of an American woodsman, or the plank on which the trained soldier lays his wearied limbs at night. You may find many other particulars if you consult in chronological order all the compilers from ALDROVANDUS to the present day.

Be not startled, good Reader, when I tell you that many of these ducks are bred in the lakes near the Mississippi, nay even in some of the small ponds in the low lands or bottoms of the States of Kentucky, Indiana and Illinois; for in many parts of those districts I have surprised the females on their eggs, have caught the young when their mother was cautiously and with anxiety leading them for greater safety to some stream, and have shot many a fat one before the poor thing could fly, and when it was so plump, tender, and juicy, that I doubt much whether, you, like myself, should not much prefer them to the famed Canvass-backed Duck.

Look at that Mallard as he floats on the lake; see his elevated head glittering with emerald-green, his amber eyes glancing in the light! Even at this distance, he has marked you, and suspects that you bear no good will towards him, for he sees that you have a gun, and he has many a time been frightened by its report, or that of some other. The wary bird draws his feet under his body, springs upon them, opens his wings, and with loud quacks bids you farewell.

Now another is before you, on the margin of that purling streamlet. How brisk are all his motions compared with those of his brethren that waddle across your poultry-yard! how much more graceful in form and neat in apparel! The duck at home is the descendant of a race of slaves, and has lost his native spirit: his wings have been so little used that they can hardly raise him from the ground. But the free-born, the untamed duck of the swamps,—see how he springs on wing, and hies away over the woods.

The Mallards generally arrive in Kentucky and other parts of the Western Country, from the middle of September to the first of October, or as soon as the acorns and beech-nuts are fully ripe. In a few days they are to be found in all the ponds that are covered with seed-bearing grasses. Some flocks, which appear to be guided by an experienced leader, come directly down on the water with a rustling sound of their wings that can be compared only to the noise produced by an Eagle in the act of stooping upon its prey, while other flocks, as if they felt un-

easy respecting the safety of the place, sweep around and above it several times in perfect silence, before they alight. In either case, the birds immediately bathe themselves, beat their bodies with their wings, dive by short plunges, and cut so many capers that you might imagine them to be stark mad. The fact, however, seems to be, that all this alacrity and gaiety only shews the necessity they feel of clearing themselves of the insects about their plumage, as well as the pleasure they experience on finding themselves in a milder climate, with abundance of food around them, after a hard journey of perhaps a day and a night. They wash themselves and arrange their dress, before commencing their meal; and in this other travellers would do well to imitate them.

Now, towards the grassy margins they advance in straggling parties. See how they leap from the water to bend the loaded tops of the tall reeds. Woe be to the slug or snail that comes in their way. Some are probing the mud beneath, and waging war against the leech, frog, or lizard, that is within reach of their bills; while many of the older birds run into the woods, to fill their crops with beech-nuts and acorns, not disdaining to swallow also, should they come in their way, some of the wood-mice that, frightened by the approach of the foragers, hie towards their burrows. The cackling they keep up would almost deafen you, were you near them; but it is suddenly stopped by the approach of some unusual enemy, and at once all are silent. With heads erected on out-stretched necks, they anxiously look around. It is nothing, however, but a bear, who being, like themselves, fond of mast, is ploughing up the newly fallen leaves with his muzzle, or removing an old rotting log in search of worms. The ducks resume their employment. But another sound is now heard, one more alarming. The bear raises himself on his hind legs, snuffs the air, and with a loud snort gallops off towards the depths of his cane-brake. The ducks retreat to the water, betake themselves to the centre of the pool, and uttering half-stifled notes await the sight of the object they dread. There the enemy cunningly advances first covered by one tree, then by another. He has lost his chance of the bear, but as he is pushed by hunger, a Mallard will do for the bullet of his rusty rifle. It is an Indian, as you perceive by his red skin and flowing black hair, which, however, has been cut close from the sides of his head. In the centre of his dearly purchased blanket, a hole has been cut, through which he has thrust his bare head, and the ragged garment, like a horse's netting, is engaged as it were in flapping off the last hungry mosquitoes of the sea-

son that are fast sucking the blood from his limbs. Watch him, Mallard, Nay, wait no longer, for I see him taking aim ; better for you all to fly ! No—well, one of you will certainly furnish him with a repast. Amid the dark wood rises the curling smoke, the report comes on my ear, the ducks all rise save a pair, that, with back downwards and feet kicking against the air, have been hit by the prowler. The free son of the forest slowly approaches the pool, judges at a glance of the depth of the mire, and boldly advances, until with a cane he draws the game towards him. Returning to the wood, he now kindles a little fire, the feathers fill the air around ; from each wing he takes a quill, to clean the touch-hole of his gun in damp weather ; the entrails he saves to bait some trap. In a short time the ducks are ready, and the hunter enjoys his meal, although brief time does he take in swallowing the savoury morsels. Soon, the glimmering light of the moon will see him again on his feet, and lead him through the woods, as he goes in pursuit of other game.

The Mallards that remain with us during the whole year, and breed on the banks of the Mississippi or Lake Michigan, or in the beautiful meadows that here and there border the Schuylkil in Pennsylvania, begin to pair in the very heart of winter ; and although ducks are quite destitute of song, their courtships are not devoid of interest. The males, like other gay deceivers, offer their regards to the first fair one that attracts their notice, promise unremitting fidelity and affection, and repeat their offers to the next they meet. See that drake, how he proudly shews, first the beauty of his silky head, then the brilliancy of his wing-spots, and, with honeyed jabberings, discloses the warmth of his affection. He plays around this one, then around another, until the passion of jealousy is aroused in the breasts of the admired and flattered. Bickerings arise ; the younger duck disdains her elder sister, and a third, who conceives herself a coquette of the first order, interposes, as if to ensure the caresses of the feathered beau. Many tricks are played by ducks, good Reader, but ere long, the females retire in search of a safe place in which they may deposit their eggs and rear their young. They draw a quantity of weeds around them, and form an ill-arranged sort of nest, in which from seven to ten eggs are laid. From their bodies they pluck the softest down, and placing it beneath the eggs, begin the long process of incubation, which they intermit only for short periods, when it becomes absolutely necessary to procure a little sustenance.

At length, in about three weeks, the young began to cheep in the shell, from which, after a violent struggle, they make their escape. What beautiful creatures! See how, with their little bills, they dry their downy apparel! Now in a long line, one after another, they follow their glad mother to the water, on arriving at which they take to swimming and diving, as if elated with joy for having been introduced into existence. The male, wearied and emaciated, is far away on some other pond. The unnatural barbarian cares nothing about his progeny, nor has a thought arisen in his mind respecting the lonely condition of his mate, the greatness of her cares, or the sadness that she may experience under the idea that she has been utterly forsaken by him who once called her his only and truly beloved. No, Reader, not a thought of this kind has he wasted on her whom he has left alone in charge of a set of eggs, and now of a whole flock of innocent ducklings, to secure which from danger, and see them all grow up apace, she manifests the greatest care and anxiety. She leads them along the shallow edges of grassy ponds, and teaches them to seize the small insects that abound there, the flies, the mosquitoes, the giddy beetles that skim along the surface in circles and serpentine lines. At the sight of danger they run as it were on the water, make directly for the shore, or dive and disappear. In about six weeks, those that have escaped from the ravenous fishes and turtles have attained a goodly size; the quills appear on their wings; their bodies are encased with feathers; but as yet none are able to fly. They now procure their food by partial immersions of the head and neck in the manner of the old bird. At this period they are already fit for the table, and delicate as well as savoury food they afford. By the time that the leaves are changing their hues, the young Mallards take freely to their wings, and the old males join the congregated flocks.

The Squatters of the Mississippi raise a considerable number of Mallards, which they catch when quite young, and which, after the first year, are as tame as they can wish. These birds raise broods which are superior even to those of the wild ones, for a year or two, after which they become similar to the ordinary ducks of the poultry-yard. The hybrids produced between the Mallard and the Muscovy Duck are of great size, and afford excellent eating. Some of these half-breeds now and then wander off, become quite wild, and have by some persons been considered as forming a distinct species. They also breed, when tame, with the

Black Duck (*Anas fusca*) and the Gadwal, the latter connection giving rise to a very handsome hybrid, retaining the yellow feet and barred plumage of the one, and the green head of the other parent.

I have found the Mallard breeding on large prostrate and rotten logs, three feet above the ground, and in the centre of a cane-brake, nearly a mile distant from any water. Once I found a female leading her young through the woods, and no doubt conducting them towards the Ohio. When I first saw her, she had already observed me, and had squatted flat among the grass, with her brood around her. As I moved onwards, she ruffled her feathers, and hissed at me in the manner of a goose, while the little ones scampered off in all directions. I had an excellent dog, well instructed to catch young birds without injuring them, and I ordered him to seek for them. On this the mother took to wing, and flew through the woods as if about to fall down at every yard or so. She passed and repassed over the dog, as if watching the success of his search; and as one after another the ducklings were brought to me, and struggled in my bird-bag, the distressed parent came to the ground near me, rolled and tumbled about, and so affected me by her despair, that I ordered my dog to lie down, while, with a pleasure that can be felt only by those who are parents themselves, I restored to her the innocent brood, and walked off. As I turned round to observe her, I really thought I could perceive gratitude expressed in her eye; and a happier moment I never felt while rambling in search of knowledge through the woods.

In unfrequented parts, the Mallards feed both by day and by night; but in places where they are much disturbed by gunners, they feed mostly by night, or towards evening and about sunrise. In extremely cold weather, they betake themselves to the sources of streams, and even to small springs, where they may be found along with the American Snipe. At times, after heavy falls of rain, they are seen searching for ground-worms over the corn-fields, and during the latter part of autumn, the rice plantations of Georgia and the Carolinas afford them excellent pasture grounds. I have thought indeed that at this season these birds perform a second migration as it were, for they then pour into the rice fields by thousands from the interior. In the Floridas, they are at times seen in such multitudes as to darken the air, and the noise they make in rising from off a large submersed savannah, is like the rumbling of thunder. So numerous were the Mallards while I was at General HERNANDEZ's in East Florida, that a single Negro whom that gentleman kept as a hunter,

would shoot from fifty to a hundred and twenty in a day, thus supplying the plantation with excellent food.

The flight of the Mallard is swift, strong, and well sustained. It rises either from the ground or from the water at a single spring, and flies almost perpendicularly for ten or fifteen yards, or, if in a thick wood, until quite above the tops of the tallest trees, after which it moves horizontally. If alarmed, it never rises without uttering several *quacks*; but on other occasions it usually leaves its place in silence. While travelling to any distance, the whistling sound of their wings may be heard a great way off, more especially in the quiet of night. Their progress through the air I have thought might be estimated at a mile and a half in the minute; and I feel very confident that when at full speed and on a long journey, they can fly at the rate of a hundred and twenty miles in the hour.

The Mallard is truly omnivorous, its food consisting of every thing that can possibly satisfy the cravings of its extraordinary appetite. Nor is it at all cleanly in this respect, for it will swallow any kind of offals, and feed on all sorts of garbage, even putrid fish, as well as on snakes and small quadrupeds. Nuts and fruits of all kinds are dainties to it, and it soon fattens on rice, corn, or any other grain. My friend JOHN BACHMAN, who usually raises a great number of Mallards every year, has the young fed on chopped fish, on which they thrive uncommonly well. So very greedy are these birds, that I have often observed a couple of them tugging for a long time against each other for the skin of an eel, which was already half swallowed by the one, while the other was engaged at the opposite end. They are expert fly-catchers, and are in the habit of patting with their feet the damp earth, to force ground-worms out of their burrows.

Besides man, the enemies of the Mallard are the White-headed Eagle, the Snowy Owl, the Virginian Owl, the racoon, the lynx, and the snapping turtle. Mallards are easily caught by snares, steel-traps baited with corn, and figure-of-four traps. As we have no decoys in the United States, I shall not trouble you with a new edition of the many accounts you will find in ornithological books of that destructive method of procuring Wild Ducks.

The eggs of this species measure two inches and a quarter in length, one inch and five-eighths in breadth. The shell is smooth, and of a plain light dingy green. They are smaller than those of the tame duck, and rarely so numerous. As soon as incubation commences, the males asso-

ciate together in flocks, until the young are able to migrate. This species raises only one brood in the season, and I never found its nest with eggs in autumn. The female covers her eggs before she leaves them to go in search of food, and thus keeps them sufficiently warm until her return.

ANAS BOSCHAS, *Linn. Syst. Nat.* vol. i. p. 205.—*Lath. Ind. Ornith.* vol. ii. p. 850.—

Ch. Bonaparte, Synopsis of Birds of the United States, p. 383.

MALLARD, ANAS BOSCHAS, *Wils. Amer. Ornith.* vol. viii. p. 112. pl. 70. fig. 7.—

Nuttall, Manual, vol. ii. p. 378.

Adult Male. Plate CCXXI. Fig. 1. 1.

Bill about the length of the head, higher than broad at the base, depressed and widened towards the end, rounded at the tip. Upper mandible with the dorsal line sloping and a little concave, the ridge at the base broad and flat, towards the end broadly convex, as are the sides, the edges soft and rather obtuse, the marginal lamellæ transverse, fifty on each side; the unguis oval, curved, abrupt at the end. Nasal groove elliptical, subbasal, filled by the soft membrane of the bill; nostrils subbasal, placed near the ridge, longitudinal, elliptical, pervious. Lower mandible slightly curved upwards, with the angle very long, narrow, and rather pointed, the lamellæ about sixty.

Head of moderate size, oblong, compressed; neck rather long and slender; body full, depressed. Feet short, stout, placed a little behind the centre of the body; legs bare a little above the joint; tarsus short, a little compressed, anteriorly with small scutella, laterally and behind with reticulated angular scales. Hind toe extremely small, with a very narrow membrane; third toe longest, fourth a little shorter, but longer than second; all the toes covered above with numerous oblique scutella; the three anterior connected by reticulated membranes, the outer with a thick margin, the inner with the margin extended into a slightly lobed web. Claws small, arched, compressed, rather acute, that of the middle toe much larger, with a dilated, thin, inner edge.

Plumage dense, soft, and elastic; of the head and neck short, blended, and splendid; of the other parts in general broad and rounded. Wings of moderate length, acute; primaries narrow and tapering, the second longest, the first very little shorter; secondaries broad, curved inwards,

the inner elongated and tapering. Tail short, much rounded, of sixteen acute feathers, of which the four central are recurved.

Bill greenish-yellow. Iris dark brown. Feet orange-red. Head and upper part of neck deep green, a ring of white about the middle of the neck; lower part of the neck anteriorly, and fore part of breast, dark brownish-chestnut; fore part of back light yellowish-brown, tinged with grey; the rest of the back brownish-black, the rump black, splendent with green and purplish-blue reflections, as are the recurved tail-feathers. Upper surface of wings greyish-brown, the scapulars lighter except their inner webs, and with the anterior dorsal feathers minutely undulated with brown. The speculum on about ten of the secondaries is of brilliant changing purple and green, edged with velvet-black and white, the anterior bands of black and white being on the secondary coverts. Breast, sides, and abdomen, very pale grey, minutely undulated with darker; lower tail-coverts black with blue reflections.

Length to the end of the tail 24 inches, to the end of the claws 23, to the tips of the wings 22; extent of wings 36; wing from flexure $10\frac{1}{2}$; tail $4\frac{1}{2}$; bill $2\frac{1}{2}$; tarsus $1\frac{3}{4}$; middle toe $2\frac{1}{2}$, its claw $\frac{5}{8}$. Weight from $2\frac{1}{4}$ to 3 lb.

Adult Female. Plate CCXXI. Figs. 2. 2.

Bill black in the middle, dull orange at the extremities and along the edges. Iris as in the male, as are the feet. The general colour of the upper parts is pale yellowish-brown, streaked and spotted with dusky brown. The feathers of the head narrowly streaked, of the back with the margin and a central streak yellowish-brown, the rest dark, of the scapulars similar, but with the light streak on the outer web. The wings are nearly as in the male, the speculum similar, but with less green. The lower parts dull ochre, deeper on the lower neck, and spotted with brown.

Length 22 inches. Weight from 2 lb. to $2\frac{1}{4}$.

The Young acquire the full plumage in the course of the first winter.

THE WHITE IBIS.

IBIS ALBA, VIEILL.

PLATE CCXXII. ADULT MALE, AND YOUNG.

SANDY ISLAND, of which I have already spoken in my second volume, is remarkable as a breeding-place for various species of water and land birds. It is about a mile in length, not more than a hundred yards broad, and in form resembles a horse-shoe, the inner curve of which looks toward Cape Sable in Florida, from which it is six miles distant. At low water, it is surrounded to a great distance by mud flats abounding in food for wading and swimming birds, while the plants, the fruits, and the insects of the island itself, supply many species that are peculiar to the land. Besides the White Ibis, we found breeding there the Brown Pelican, the Purple, the Louisiana, the White, and the Green Herons, two species of Gallinule, the Cardinal Grosbeak, Crows, and Pigeons. The vegetation consists of a few tall mangroves, thousands of wild plum trees, several species of cactus, some of them nearly as thick as a man's body, and more than twenty feet high, different sorts of smilax, grape-vines, cane, palmettoes, Spanish bayonets, and the rankest nettles I ever saw,—all so tangled together, that I leave you to guess how difficult it was for my companions and myself to force a passage through them in search of birds' nests, which, however, we effected, although the heat was excessive, and the stench produced by the dead birds, putrid eggs, and the natural effluvia of the Ibises, was scarcely sufferable. But then, the White Ibis was there, and in thousands; and, although I already knew the bird, I wished to study its manners once more, that I might be enabled to present you with an account of them, which I now proceed to do,—endeavouring all the while to forget the pain of the numerous scratches and lacerations of my legs caused by the cactuses of Sandy Island.

As we entered that well-known place, we saw nests on every bush, cactus, or tree. Whether the number was one thousand or ten I cannot say, but this I well know:—I counted forty-seven on a single plum-tree. These nests of the White Ibis measure about fifteen inches in their greatest diameter, and are formed of dry twigs intermixed with fibrous roots and green branches of the trees growing on the island, which this bird

easily breaks with its bill; the interior, which is flat, being finished with leaves of the cane and some other plants. The bird breeds only once in the year, and the full number of its eggs is three. They measure two inches and a quarter in length, with a diameter of one inch and five-eighths, are rough to the touch, although not granulated, of a dull white colour, blotched with pale yellow, and irregularly spotted with deep reddish-brown. They afford excellent eating, although when boiled they do not look inviting, the white resembling a livid-coloured jelly, and the yolk being of a reddish-orange, the former wonderfully transparent, instead of being opaque like that of most other birds. The eggs are deposited from the 10th of April to the 1st of May, and incubation is general by the 10th of the latter month. The young birds, which are at first covered with thick down of a dark grey colour, are fed by regurgitation. They take about five weeks to be able to fly, although they leave the nest at the end of three weeks, and stand on the branches, or on the ground, waiting the arrival of their parents with food, which consists principally of small fiddler crabs and cray-fish. On some occasions, I have found them at this age miles away from the breeding-places, and in this state they are easily caught. As soon as the young are able to provide for themselves, the old birds leave them, and the different individuals are then seen searching for food apart. While nestling or in the act of incubating, these Ibises are extremely gentle and unwary, unless they may have been much disturbed, for they almost allow you to touch them on the nest. The females are silent all the while, but the males evince their displeasure by uttering sounds which greatly resemble those of the White-headed Pigeon, and which may be imitated by the syllables *crook*, *croo*, *croo*. The report of a gun scarcely alarms them at first, although at all other periods these birds are shy and vigilant in the highest degree.

The change in the colouring of the bill, legs, and feet of this bird, that takes place in the breeding-season, is worthy of remark, the bill being then of a deep orange-red, and the legs and feet of a red nearly amounting to carmine. The males at this season have the gular pouch of a rich orange colour, and somewhat resembling in shape that of the Frigate Pelican, although proportionally less. During winter, these parts are of a dull flesh colour. The irides also lose much of their clear blue, and resume in some degree the umber colour of the young birds. I am thus particular in these matters, because it is doubtful if any one else has ever paid attention to them.

While breeding, the White Ibises go to a great distance in search of food for their young, flying in flocks of several hundreds. Their excursions take place at particular periods, determined by the decline of the tides, when all the birds that are not sitting go off, perhaps twenty or thirty miles, to the great mud flats, where they collect abundance of food, with which they return the moment the tide begins to flow. As the birds of this genus feed by night as well as by day, the White Ibis attends the tides at whatever hour they may be. Some of those which bred on Sandy Key would go to the keys next the Atlantic, more than forty miles distant, while others made for the Ever Glades; but they never went off singly. They rose with common accord from the breeding-ground, forming themselves into long lines, often a mile in extent, and soon disappeared from view. Soon after the turn of the tide we saw them approaching in the same order. Not a note could you have heard on those occasions; yet if you disturb them when far from their nests, they utter loud hoarse cries resembling the syllables *hunk, hunk, hunk*, either while on the ground or as they fly off.

The flight of the White Ibis is rapid and protracted. Like all other species of the genus, these birds pass through the air with alternate flapings and sailings; and I have thought that the use of either mode depended upon the leader of the flock, for, with the most perfect regularity, each individual follows the motion of that preceding it, so that a constant appearance of regular undulations is produced through the whole line. If one is shot at this time, the whole line is immediately broken up, and for a few minutes all is disorder; but as they continue their course, they soon resume their former arrangement. The wounded bird never attempts to bite or to defend itself in any manner, although, if only winged, it runs off with more speed than is pleasant to its pursuer.

At other times the White Ibis, like the Red and the Wood Ibises, rises to an immense height in the air, where it performs beautiful evolutions. After they have thus, as it were, amused themselves for some time, they glide down with astonishing speed, and alight either on trees or on the ground. Should the sun be shining, they appear in their full beauty, and the glossy black tips of their wings form a fine contrast with the yellowish-white of the rest of their plumage.

This species is as fond of resorting to the ponds, bayous, or lakes that are met with in the woods, as the Wood Ibis itself. I have found it

breeding there at a distance of more than three hundred miles from the sea, and remaining in the midst of the thickest forests until driven off to warmer latitudes by the approach of winter. This is the case in the State of Mississippi, not far from Natchez, and in all the swampy forests around Bayou Sara and Pointe Coupée, as well as the interior of the Floridas. When disturbed in such places, these Ibises fly at once to the tops of the tallest trees, emitting their hoarse *lunk*, and watch your motions with so much care that it is extremely difficult to get within shot of them.

The manner in which this bird searches for its food is very curious. The Woodcock and the Snipe, it is true, are probers as well as it, but their task requires less ingenuity than is exercised by the White or the Red Ibis. It is also true that the White Ibis frequently seizes on small crabs, slugs and snails, and even at times on flying insects; but its usual mode of procuring food is a strong proof that cunning enters as a principal ingredient in its instinct. The Cray-fish often burrows to the depth of three or four feet in dry weather, for before it can be comfortable it must reach the water. This is generally the case during the prolonged heats of summer, at which time the White Ibis is most pushed for food. The bird, to procure the Cray-fish, walks with remarkable care towards the mounds of mud which the latter throws up while forming its hole, and breaks up the upper part of the fabric, dropping the fragments into the deep cavity that has been made by the animal. Then the Ibis retires a single step, and patiently waits the result. The Cray-fish, incommoded by the load of earth, instantly sets to work anew, and at last reaches the entrance of its burrow; but the moment it comes in sight, the Ibis seizes it with his bill.

Whilst at Indian Key, I observed an immense quantity of beautiful tree snails, of a pyramidal or shortly conical form, some pure white, others curiously marked with spiral lines of bright red, yellow and black. They were crawling vigorously on every branch of each bush where there was not a nest of the White Ibis; but wherever that bird had fixed its habitation, not a live snail was to be seen, although hundreds lay dead beneath. Was this caused by the corrosive quality of the bird's ordure?

There is a curious though not altogether general difference between the sexes of this species as to the plumage:—the male has five of its

primaries tipped with glossy black for several inches, while the female, which is very little smaller than the male, has only four marked in this manner. On examining more than a hundred individuals of each sex, I found only four exceptions, which occurred in females that were very old birds, and which, as happens in some other species, might perhaps have been undergoing the curious change exhibited by ducks, pheasants, and some other birds, the females of which when old sometimes assume the livery of the males.

Much, as you are aware, good Reader, has been said respecting the "oil bags" of birds. I dislike controversy, simply because I never saw the least indications of it in the ways of the Almighty Creator. Should I err, forgive me, but my opinion is, that these organs were not made without an object. Why should they consist of matter so conveniently placed, and so disposed as to issue under the least pressure, through apertures in the form of well defined tubes? The White Ibis, as well as the Wood Ibis, and all the other species of this genus, when in full health, has these oil bags of great size, and, if my eyes have not deceived me, makes great use of their contents. Should you feel anxious to satisfy yourself on this subject, I request of you to keep some Ibises alive for several weeks, as I have done, and you will have an opportunity of judging. And again, tell me if the fat contained in these bags is not the very best *lip-salve* that can be procured.

When any species of Ibis with which I am acquainted falls into the water on being wounded, it swims tolerably well; but I have never observed any taking to the water and swimming either by choice or to escape pursuit. While in the company of Mr JOSEPH MASON, a young man who was for some time employed by me, and who has drawn plants to some of my birds, although not so successfully as my amiable friend Miss MARTIN, or GEORGE LEHMAN, who finish those they draw as beautifully as my learned and valued friend WILLIAM MACGILLIVRAY of Edinburgh does his faithful drawings of birds, I chanced one morning to be on the look-out for White Ibises, in a delightful swamp not many miles from Bayou Sara. It was in the end of summer, and all around was pure and calm as the clear sky, the bright azure of which was reflected by the lake before us. The trees had already exchanged the verdure of their foliage for more mellow tints of diversified hue; the mast dropped from the boughs; some of the Warblers had begun to think of removing farther south; the Night Hawk, in company with the Chimney Swallow, was passing swiftly towards the

land of their winter residence, and the Ibises had all departed for the Florida coasts, excepting a few of the white species, one of which we at length espied. It was perched about fifty yards from us towards the centre of the pool, and as the report of one of our guns echoed among the tall cypresses, down to the water, broken-winged, it fell. The exertions which it made to reach the shore seemed to awaken the half-torpid alligators that lay in the deep mud at the bottom of the pool. One shewed his head above the water, then a second and a third. All gave chase to the poor wounded bird, which, on seeing its dreaded and deadly foes, made double speed towards the very spot where we stood. I was surprised to see how much faster the bird swam than the reptiles, who, with jaws widely opened, urged their heavy bodies through the water. The Ibis was now within a few yards of us. It was the alligator's last chance. Springing forward as it were, he raised his body almost out of the water; his jaws nearly touched the terrified bird; when pulling three triggers at once, we lodged the contents of our guns in the throat of the monster. Thrashing furiously with his tail, and rolling his body in agony, the alligator at last sunk to the mud; and the Ibis, as if in gratitude, walked to our very feet, and there lying down, surrendered itself to us. I kept this bird until the succeeding spring, and by care and good nursing, had the pleasure of seeing its broken wing perfectly mended, when, after its long captivity, I restored it to liberty, in the midst of its loved swamps and woods.

The young bird of this species which I kept alive for some time, fed freely, after a few days captivity, on soaked Indian corn meal, but evinced great pleasure when cray-fishes were offered to it. On seizing one, it beat it sideways on the ground, until the claws and legs were broken off, after which it swallowed the body whole. It was fond of lying on its side in the sun for an hour or so at a time, pluming its body and nursing the sore wing. It walked lightly and very gracefully, though not so much so as the Herons. It did not molest its companions, and became very gentle and tame, following those who fed it like a common fowl.

The Creoles of Louisiana call this species "*Bec croche*," and also "*Petit Flaman*," although it is also generally known by the name of "Spanish Curlew." The flesh, which, as well as the skin, is of a dull orange colour, is extremely fishy, although the birds are often sold in our southernmost markets, and are frequently eaten by the Indians.

The White Ibis has been shot eastward as far as New Jersey. Of

this I have been made aware by my generous friend EDWARD HARRIS, Esq. I never saw one farther up the Mississippi than Memphis.

TANTALUS ALBUS, Linn. Syst. Nat. vol. i. p. 242.—Lath. Ind. Ornith. vol. ii. p. 706.

WHITE IBIS, *TANTALUS ALBUS*, *Wils.* Amer. Ornith. vol. viii. p. 43. pl. 66. fig. 3.—

Nuttall, Manual, vol. ii. p. 86.

IBIS ALBA, *Ch. Bonaparte*, Synops. of Birds of the United States, p. 312.

Adult Male. Plate CCXXII. Fig. 1.

Bill very long, slender, deeper than broad, compressed, tapering, arcuate, obtuse at the tip. Upper mandible with the dorsal line arched in its whole length, the ridge convex, broader towards the end, the sides at the base nearly erect, towards the end very convex and narrow, the ridge separated in its whole length from the sides by a deep narrow groove, the edges inflected and sharp. Nostrils basal, dorsal, linear, direct. Lower mandible nearly equal to upper, its angle very narrow, and protracted in the form of a groove to the tip, the sides convex, the edges sharp, but strong.

Head small, compressed; neck long and slender; body slender, deeper than broad; wings rather large. Feet very long, slender; tibiæ long, bare about half their length, and covered all round with hexagonal scales; tarsi long, slender, anteriorly covered with numerous broad scutella, the rest with hexagonal scales; toes slender, the first much smaller, the third longest, the fourth considerably shorter, the second very little shorter than the fourth, all covered above with numerous scutella, laterally with angular scales, beneath flattened with thick soft margins; the anterior connected at the base by membranes, of which the outer is longer; claws small, arched, compressed, obtuse, the middle one with a sharp thin edge.

Head and throat bare to beyond the eyes, as are the tibiæ nearly half way up. Plumage in general soft, unglossed, the feathers rather blended, those of the head and neck narrow and more blended. Wings long, ample, some of the secondaries as long as the longest primary when the wings are closed; third quill longest, but second and fourth almost as long, first longer than fifth; secondaries broad and rounded. Tail short, slightly emarginate and rounded, of twelve rounded feathers.

Bare parts of the head light orange-red; bill the same, but towards the tip dusky. Iris of a fine pearly blue. Legs and toes paler than the

bill ; claws dusky, tipped with horn colour. Plumage pure white, excepting the ends of from three to five of the outer primaries, which are deep black, with blue and green reflexions.

Length to end of tail $24\frac{1}{2}$ inches, to end of wings 27, to end of claws $31\frac{1}{2}$; extent of wings 40 ; wing from flexure $12\frac{1}{2}$; tail $4\frac{3}{4}$; bill along the back $5\frac{1}{4}$; along the edge $5\frac{3}{4}$; bare space of tibia $1\frac{3}{4}$, tarsus $3\frac{1}{4}$, middle toe $2\frac{1}{2}$, its claw $\frac{3}{8}$. Weight 2 lb.

The adults vary considerably in size, and remarkably in the length of the bill. The extent of the bare space on the head varies according to age. In the breeding season the bill and legs are bright carmine ; during the rest of the year paler.

Young bird killed in September. Plate CCXXII. Fig. 2.

In its first plumage this species is of a dull brown colour all over, excepting the rump, which is whitish, and the tail, which is tinged with grey.

After the first moult, the bill is pale yellowish-orange, toward the base greenish ; the naked parts of the head are pale orange-yellow, inclining to flesh-colour ; the eye dark brown ; the feet pale blue. The plumage is of a dull olivaceous brown, the quills darker, the tail rather lighter, the hind part of the back white, the breast and abdomen white.

The Crayfish represented in the plate will be found described in the article entitled " the White Perch and its favourite bait."

THE AMERICAN OYSTER-CATCHER.

HÆMATOPUS PALLIATUS, TEMM.

PLATE CCXXIII. MALE.

OUR Oyster-Catcher has a very extensive range. It spends the winter along the coast from Maryland to the Gulf of Mexico, and being then abundant on the shores of the Floridas, may be considered a constant resident in the United States. At the approach of spring, it removes toward the Middle States, where, as well as in North Carolina, it breeds. It seems scarcer between Long Island and Portland in Maine, where you again see it, and whence it occurs all the way to Labrador, in which country I found that several were breeding in the month of July. Unless in winter, when these birds assemble in parties of twenty-five or thirty individuals, they are seldom met with in greater numbers than from one to four pairs, with their families, which appear to remain with the parent birds until the following spring. It is never found inland, nor even far up our largest rivers, but is fond of remaining at all times on the sandy beaches and rocky shores of our salt-water bays or marshes. In Labrador, I met with it farther from the open sea than in any other part, yet always near salt-water. I have never met with any other species on the coasts of North America.

Shy, vigilant, and ever on the alert, the Oyster-Catcher walks with a certain appearance of dignity, greatly enhanced by its handsome plumage and remarkable bill. If you stop to watch it, that instant it sounds a loud shrill note of alarm; and should you advance farther towards it, when it has neither nest nor young, off it flies quite out of sight. Few birds, indeed, are more difficult to be approached, and the only means of studying its habits I found to be the use of an excellent telescope, with which I could trace its motions when at the distance of a quarter of a mile, and pursuing its avocations without apprehension of danger. In this manner I have seen it probe the sand to the full length of its bill, knock off limpets from the rocks on the coast of Labrador, using its weapon sideways and insinuating it between the rock and the shell like a chisel, seize the bodies of gaping oysters on what are called in the Southern States and the Floridas "Raccoon oyster beds," and at other times

take up a "razor-handle" or solen, and lash it against the sands until the shell was broken and the contents swallowed. Now and then they seem to suck the sea-urchins, driving in the mouth, and introducing their bill by the aperture, without breaking the shell ; again they are seen wading up to their bodies from one place to another, seizing on shrimps and other crustacea, and even swimming for a few yards, should this be necessary to enable them to remove from one bank to another without flying. Small crabs, fiddlers, and sea-worms, are also caught by it, the shells of which in a broken state I have found in its gizzard in greater or less quantity. Frequently, while on wet sea-beaches, it pats the sand, to force out the insects ; and in one instance I saw an individual run from the water to the dry sand, with a small flounder in its bill, which it afterwards devoured.

This bird forms no regular nest, but is contented with scratching the dry sand above high-water mark, so as to form a slight hollow, in which it deposits its eggs. On the coast of Labrador, and in the Bay of Fundy, it lays its eggs on the bare rock. When the eggs are on sand, it seldom sits on them during the heat of the sun ; but in Labrador, it was found sitting as closely as any other bird. Here, then, is another instance of the extraordinary difference of habit in the same bird under different circumstances. It struck me so much that had I not procured a specimen in Labrador, and another in our Middle Districts, during the breeding season, and found them on the closest examination to be the same, I should perhaps have thought the birds different. Everywhere, however, I observed that this bird is fond of places covered with broken shells and drifted sea-weeds or grasses, as a place of security for its eggs, and where, in fact, it is no very easy matter to discover them. The eggs are two or three, measure two inches and one-eighth in length, by an inch and a half in breadth, and are of the form of those of a common hen. They are of a pale cream colour, spotted with irregular marks of brownish-black, and others of a paler tint, pretty equally dispersed all over. The birds, even when not sitting on them, are so very anxious about them, that on the least appearance of an enemy, they scream out loudly, and if you approach the nest, fly over and around you, although always at a considerable distance. When you meet with the young, which run as soon as they are hatched, the old birds manifest the greatest anxiety. They run before you, or fly around you, with great swiftness, and emit peculiar notes, which at once induce their little ones to squat among the

sand and broken shells, where, on account of their dull greyish-colour, it is very difficult to see them unless you pass within a foot or two of them, when they run off emitting a plaintive note, which renders the parents doubly angry. Their shape is now almost round, and the streaks of their back and rump, as well as the curved points of their bills, might induce you to believe them to be any thing but the young of an Oyster-Catcher. I have caught some, which I thought were more than a month old, and yet were unable to fly, although full feathered. They appeared weakened by their fatness, and were overtaken by running after them on the sands. There were no parent birds near or in sight of them ; yet I much doubt if they procured their own food at this period, and have more reason to believe that, like some other species of birds, they were visited and supplied with food at particular hours of the day or of the night, as is the case with Herons and Ibises, for the Oyster-Catcher is scarcely nocturnal.

By the beginning of October these birds return to the south. I saw them at Labrador until the 11th of August, but cannot say at what period they leave that country. When wounded while wading or on the shore, they make for the water, on which they float buoyantly and move with ease.

The flight of the American Oyster-catcher is powerful, swift, elegant at times, and greatly protracted. While they are on wing, their beauties are as effectually displayed as those of the Ivory-billed Woodpecker of our woods, the colours of which are somewhat similar. The transparent white of their wings contrasts with their jetty tips, and is enriched by the coral hue of the bill, while the beautiful white of their lower parts has a very pleasing effect. Their loud cries, too, of *whEEP, whEEP, whEEP*, which sound in your ears, are quite different from any you have heard ; and as they perform their various evolutions, all charming in themselves, you cannot, if unacquainted with the bird, refrain from asking what it is ? Now wheeling with wonderful impetuosity, they pass within a hundred yards of you, and suddenly checking their flight return, not low over the waters as before, but high in the air. Again, they form their ranks in a broad front, and again, as if suddenly alarmed by the report of a distant gun, they close pell-mell, and dip towards the sands or the waters. Shoot one at such a moment, and you may expect to kill another ; but as this is done, the wary birds, as if suddenly become aware of your intentions, form themselves into a straggling line, and before a minute has elapsed, far beyond reach, and fading on the view, are the remaining Oyster-catchers.

The gullet of this species is capable of being considerably distended. When your finger is introduced into it, it passes with ease into a sort of crop, where the food is apparently prepared before entering the gizzard, which is rather muscular. How this bird disposes of the hard particles of shells, pebbles, and other matters, with which its food is mixed, is beyond my comprehension, and one which I gladly leave for your solution. Their flesh is dark, tough, and unfit for eating, unless in cases of extreme necessity.

The females and young are dark olive-brown above, like the males, but of a browner shade. I have represented a male bird. I have never met with the European Oyster-catcher, *Hæmatopus Ostralegus*, in any part of the United States, and, although I cannot of course aver that it does not occur there, I believe that the American or Mantled Oyster-catcher has been confounded with it by WILSON and others. Indeed, the figure given by WILSON resembles that of the European bird, but his description of the female and young almost agrees with the present species, the dimensions also being nearly the same.

HÆMATOPUS PALLIATUS, Temm. Man. d'Ornith. part ii. p. 532.

MANTLED OYSTER-CATCHER, HÆMATOPUS PALLIATUS, Nuttall, Manual, vol. ii. p. 15.

Plate CCXXIII. Male in June.

Bill long, slender but strong, straight, deeper than broad at the base, towards the end extremely compressed, terminating in a very thin wedge-shaped point. Upper mandible with the dorsal line at the base straight and slightly sloping, convex beyond the nostrils, then straight and sloping to the point, the ridge broad and flattened as far as the prominence, afterwards extremely narrow, the sides sloping at the base, perpendicular towards the end, the edges rather sharp. Nasal groove basal, long; nostrils basal, in the middle of the groove, linear, direct, placed nearer the margin than the dorsal line, pervious. Lower mandible straight, the dorsal line at the base sloping upwards, at one-third of the length of the bill bulging, then straightish and slightly ascending, the tip narrower than that of the upper mandible, the sides at the base sloping upwards, and having a shallow groove, towards the end becoming perpendicular. The bill differs from that of the *Hæmatopus Ostralegus* in being much deeper at the bulging part, much more attenuated towards the point, and proportionally longer.

Head of moderate size, oblong, the forehead rounded. Neck rather long. Body stout, compact, deeper than broad. Wings long. Feet of moderate length, rather stout; tibia bare for a fourth of its length, and, like the slightly compressed tarsus, covered all round with hexagonal scales; toes rather short and fleshy, the hind toe wanting, the second a little shorter than the fourth, the third much longer, all scaly at the base above, scutellate towards the end, flattened and broad beneath, with thick margins, which are covered with prominent thick scales, and connected at the base by short webs of which the outer is longer; claws small, blunt, rather compressed, that of the middle toe largest, and with a dilated thin inner edge. .

Plumage of the head and neck short, blended, of the back compact, and slightly glossed, of the lower parts close and rather blended, the feathers in general incurved, broad, and rounded. Wings long, acute; primaries rather narrow and tapering, the first longest, the second slightly shorter, the rest rapidly graduated; secondaries broad and rounded, the inner much elongated and tapering. Tail short, rounded of twelve rather broad, rounded feathers. *

Bill vermillion, lighter at the base. Edges of eyelids vermillion; iris bright yellow. Feet very pale flesh-colour; claws brownish-black. Head and neck dull black tinged with bluish-grey; lower eyelid white; the bases of the feathers on the chin white. The general colour of the upper parts is light greyish-brown, tinged with olive, and in certain lights with faint reddish-purple reflections; the edge of the wing, the tips of the secondary coverts, the secondary quills, excepting the inner elongated ones, pure white; as are the breast, sides, under wing-coverts, abdomen, sides of the rump, the upper and the lower tail-coverts. Basal half of the tail white, the rest greyish-brown, like the back.

Length to end of tail $17\frac{1}{2}$, to end of claws $19\frac{1}{2}$; wing from flexure $10\frac{1}{2}$, tail $4\frac{1}{4}$; extent of wings 36; bill along the back $3\frac{5}{8}$; along the edge $3\frac{7}{8}$; bill at the base $1\frac{9}{16}$, at the deepest part in the middle $1\frac{8}{16}$; naked part of tibia 1; tarsus $2\frac{1}{4}$; middle toe $1\frac{8}{16}$, its claw $\frac{3}{16}$. Weight 1 lb. $4\frac{1}{2}$ oz.

The bill varies considerably in length and depth. Individuals vary in length from 17 to 18 inches.

The Female is precisely similar to the male.

THE KITTIWAKE GULL.

LARUS TRIDACTYLUS, LATH.

PLATE CCXXIV. ADULT IN SUMMER, AND YOUNG IN WINTER.

THIS beautiful Gull ranges, during the autumnal and winter months, along the whole of our extensive coasts. I have procured it from the mouth of the Mississippi to the coast of Maine, and have traced it from the latter district to Labrador. Yet I never saw it on any of our great lakes or rivers, nor in any part of the interior. From New York to Eastport it is extremely abundant, and many breed on the Island of Grand Manan, off the entrance of the Bay of Fundy.

As we approached the famous Gannet Rock of the Gulf of St Lawrence, the wind suddenly rose to a gale ; but as I was exceedingly anxious that a landing should be effected on the island, every exertion was made to enable me to accomplish my purpose. The whale boat was manned. THOMAS LINCOLN and my son leaped into it, accompanied by young COOLEGE. Urged by strong pulls, the buoyant boat advanced towards the grim rock. For nearly an hour it became hidden from my sight ; but now and then the report of a gun brought intimation that all was as yet safe ; and at length I had the great pleasure of seeing it advancing towards the Ripley, which stood off and on, shivering as it were under the heavy blast. My eye fixed to the telescope, watched every movement of the boat, as with fear I saw it tossed from billow to billow, this moment a glimpse of her keel appearing over the edge of a wave, the next a foot of her stem only seeming to float on the waters. " Pull steadily on, my good lads," at last came on my ear, when, by a heavy surge, the floating shell was driven back some twenty yards, as I thought, and the wave, foaming with wrath, broke over her. Breathless and exhausted, the crew at length came within reach of a line, as the boat was dangerously plunging, when by good luck the rope was thrown across her, and in a few moments she lay snug under our lee. How happy was I when I again saw my son, my young companions, and the sailors, on the deck of the Ripley. Quickly was the whaler hauled on board, and with joy we saw our vessel fly off like a Kittiwake before the gale.

When the anxiety was over, inquiries were made as to the success of the

adventurous party. Several nests of the Kittiwake and many of its eggs had been brought safe on board. Notes had been taken on the spot, and the result of the expedition was as follows:—The nests were found placed on some ledge of the huge rock, so small as barely to admit their breadth, which was about a foot. They were placed where no other bird than the Guillemot would have ventured to drop its egg, or the Raven to fix his nest. Yet on that narrow platform the Kittiwake sat on its three eggs, as unconcerned as if in a meadow. The nests were altogether composed of sea-weeds called “eel-grass,” and coarse grasses, probably procured on the top of the rock, or stolen from the nest of some unwary Solan Goose. Their inner surface was quite flat, although some of the nests were many inches in thickness, and looked as if they had been increased in bulk year after year. The sitting birds remained on their eggs with uncommon pertinacity, seldom indeed flying off, but merely moving aside. The male birds, or those that had no eggs, on the contrary, were extremely clamorous, flew around the party in great concern, and shewed much courage. The eggs are of a light olive-green colour, marked with numerous irregular spots of dark brown. Their average length is two inches and a quarter, their greatest breadth one inch and seven-eighths. No other species of Gull was seen about the rock; and indeed I have regularly observed that each species of this genus breeds far apart, although at all other seasons it may associate with others.

The young remain a considerable time in the nest or about it, when room is afforded. Their bills and feet are now quite black, the eye dark, and they do not change these colours until the second spring after their birth, when the bill is dull yellow, the legs and feet of a greenish flesh-colour, and these parts gradually improve in their tints until they acquire the appearance represented in the plate. This species raises only one brood in the season, and old and young leave the coast of Labrador at the first appearance of winter, or when the Ivory Gull reaches that country. This, however, I know only from hearsay, having received the information from a settler at Bras d’Or, who has lived there many years, and must know something of both species, as he was in the habit of salting young Kittiwakes for winter provisions, along with those of other species, and of shooting the Ivory Gull when it arrived over his harbour in the month of December.

The Kittiwake is on land the most awkward of its tribe; and, although it walks often on the rocks, its gait manifests a waddling *gaucherie*; but

on the water, or in the air, few birds surpass it in buoyancy, grace, and ease of motion. Bearing up against the heaviest gale, it passes from one trough of the sea to another, as if anxious to rest for an instant under the lee of the billows; yet as these are seen to rear their curling crests, the Gull is already several feet above them, and preparing to plunge into the next hollow. While in our harbour, and during fine weather, they seemed to play with their companions of other species. Now with a spiral curve, they descend toward the water, support themselves by beats of their wings, decline their heads, and pick up a young herring or some bit of garbage, when away they fly, chased perhaps by several others anxious to rob them of the prize. Noon has arrived. High above the mast-head of our tallest man-of-war, the Kittiwakes float gracefully in wide circles, until all, as if fatigued, sail downward again with common accord towards the transparent deep, and, alighting close to each other, seem to ride safely at anchor. There they now occupy themselves in cleaning and arranging their beautiful plumage.

The food of this species consists of small fish, sea insects, and small bivalves, most of which they procure while on wing, even those left dry by the tide. Unlike the larger species, they do not take up shell-fish to break them by letting them fall on the rocks; at least I never saw them do so. Their principal enemies are different species of *Lestris*, especially that beautiful one named the *L. parasiticus*. This tormentor follows the Kittiwake to the very waters around the Gulf of Florida during the winter. There with astonishing swiftness, and an audacity scarcely to be surpassed, it gives chase to the Gull, overtakes it, and forces it to alight on the water, or to disgorge the fish which it has just swallowed.

The two represented in the plate were drawn at Boston, at the approach of spring, when the old birds had already assumed the pure white of the head. This species was so abundant on several of the islands of the Bay of Boston, that several basketfuls of them were procured in the course of a few excursions. When one fell to the water, the rest would hover about and around the boat, until many were shot from a flock. The case was the same, while we were in some of the harbours of Labrador.

LARUS TRIDACTYLUS, *Lath. Ind. Ornith.* vol. ii. p. 817.—*Ch. Bonaparte*, Synopsis of Birds of the United States, p. 359.—*Swains. and Richards. Fauna Bor. Amer.* part ii. p. 423.

KITTIWAKE GULL, *Nuttall*, Manual, vol. ii. p. 298.

Adult in Summer. CCXXIV. Fig. 1.

Bill shorter than the head, strong, nearly straight, compressed. Upper mandible with the dorsal line nearly straight and slightly declinate, until towards the end, when it is decurved, the ridge convex, the sides slightly convex, the edges a little inflected, straight, towards the end declinate and arched, the tip rather obtuse. Nasal groove narrow, rather long; nostril in its fore part, lateral, longitudinal, linear, wider anteriorly, open, and pervious. Lower mandible with a slight prominence at the end of the angle, which is long and narrow, the dorsal line then nearly straight and ascending, the sides convex, the edges sharp and inflected.

Head rather large, oblong, anteriorly compressed. Neck of moderate length. Body rather full. Wings long. Feet of moderate length rather strong; tibia bare below; tarsus somewhat compressed, covered before and behind with numerous broad scutella, the sides reticulated; hind toe rudimentary, with a minute knob in place of the claw; the fore toes rather long and slender, the fourth longer than the second, all scutellate above, and connected by reticulated entire membranes, the lateral toes margined externally with a narrow membrane. Claws small, compressed, slightly arched, rather obtuse.

The plumage in general is close, elastic, very soft and blended, on the back somewhat compact. Wings very long, rather broad, acute, the first quill longest, the other primaries rapidly graduated; secondaries broad and rounded, the inner elongated and narrow. Tail of moderate length, even, of twelve rounded feathers.

Bill pale greenish-yellow. Edges of eyelids crimson; iris reddish-brown. Feet black. The head, neck, rump, tail, and lower parts generally are pure white. The back and upper surface of the wings light pearl-grey. The first five quills are black at the end, the first on its outer web also, the fifth with a small white tip, the tips of all the other quills more or less white.

Length to end of tail 18 inches, to end of wings 20, to end of claws 17; extent of wings $36\frac{1}{2}$; wing from flexure 12, tail 7; bill along the back $1\frac{1}{2}$,

along the edge of lower mandible $2\frac{2}{17}$; tarsus $1\frac{7}{8}$; middle toe $1\frac{1}{2}$, its claw $\frac{4}{17}$. Weight $1\frac{1}{2}$ lb.

Young bird in January. Plate CCXXIV. Fig. 2.

Bill and feet black. Edges of eyelids and iris as in the adult. The hind head and neck are bluish-grey, and before the eye there is a semi-lunar blackish mark, the tips of the auriculars also dark grey. Forehead, sides of the head, throat, and lower parts, white, as is the rump. Tail white, with a broad terminal band of black, the outer feather having only a spot on the inner web. The mantle is bluish-grey, but a broad band of black crosses the lower part of the hind neck, and the larger wing-coverts are of the same colour towards the end. The primary quills are black, more or less margined with white internally.

Length to end of tail 17 inches, to end of wings 19, to end of claws 17; extent of wings $36\frac{5}{8}$. Weight $14\frac{1}{2}$ oz.

THE KILDEER PLOVER.

CHARADRIUS VOCIFERUS, WILS.

PLATE CCXV. MALE AND FEMALE.

READER, suppose yourself wandering over some extensive prairie, far beyond the western shores of the Mississippi. While your wearied limbs and drooping spirits remind you of the necessity of repose and food, you see the moon's silvery rays glitter on the dews that have already clothed the tall grass around you. Your footsteps, be they ever so light, strike the ear of the watchful Kildeer, who, with a velocity scarcely surpassed by that of any other bird, comes up, and is now passing and repassing swiftly around you. His clear notes indicate his alarm, and seem to demand why *you* are there. To see him is now impossible, for a cloud has shrouded the moon; but on your left and right, before and behind, his continued vociferations intimate how glad he would be to see you depart from his beloved hunting-grounds. Nay, be not surprised if he should follow you until his eyes, meeting the glaring light of a woodsman traveller, he will wheel off and bid you adieu.

The Kildeer's large eyes seem to be given it to enable it to feed by night as well as by day. At any time after the breeding season, this species moves in loose flocks, seldom exceeding ten or fifteen individuals, which disperse over the space of an acre or two of ground. Yet some one of them always acts as a sentinel, for standing erect to the full stretch of its legs, it carefully watches all the moving objects around, as far as its eye can reach. Cows, horses, or sheep are none of its enemies, and among them it will seek for food; but let a man, or a dog, or any other animal bent on destruction, shew himself, and that instant the bird runs swiftly with a querulous note, and should any of these his enemies evince the least disposition to molest it, its beautiful wings and tail are spread, and away it goes, cheerily calling to its companions to follow.

The Kildeer is by most people called a "noisy bird and restless." Now to me it is any thing but this, unless indeed when it is disturbed by the approach or appearance of its enemies, more particularly man, of whom indeed few wild birds are fond. Watch them from under some

cover that completely conceals you, and you will see them peaceably and silently follow their avocations for hours. In this respect the Kildeer resembles the Lapwing of Europe, which is also called a restless and noisy bird, because men and dogs are ever in pursuit of the poor thing, which after all its vigilance often falls a prey to the sportsman, who condemns it merely because it endeavours to draw him from its nest or young. During winter, when undisturbed, the Kildeer is in fact an unusually silent bird. In Louisiana, where it breeds and resides at all seasons, it has obtained the name of "Piallard," so strongly rooted are old prejudices.

The Kildeer, or more properly "Kildee," so named on account of its note, which may be imitated by the syllables *kildee, kildee, dee, dee, dee*, appear in much greater numbers in the interior than along the coast. Few are seen in the State of Maine; none, I believe, in Nova Scotia, any more than in Newfoundland or Labrador. Inland, however, these birds remove to a great distance north. Unless during winter, in fact, this species is not wont to approach the shores of the sea, but prefers the newly ploughed fields, the banks of clear rivers, or the elevated worn-out grounds of the interior. Few winter to the east of Boston, while during the cold season they abound in the Southern States, although thousands spend the most rigorous months in the Western Country. In the Floridas, Georgia, and South Carolina, you find them dispersed through the sugar, cotton and rice fields; and now they are so gentle and so silent, that you can hardly conceive why they should be called noisy birds. Around the pools, upon the marshes, and along the oyster-beds at low tides, as well as on the extensive mud-flats, you will then meet with them diligently searching for food, and not neglecting to watch you with distrust. Even in the corn-fields and in company with Doves and Grakles, or by the side of some strolling Partridge, you may now and then spy the Kildeer. At this period I have sometimes got so near to it that I could clearly see the pale red margin of its beautiful eye. The bird would perhaps run a few steps, when suddenly checking its course, it would stand still, erect and rigid. Should I level my gun in jest, he would that instant fly off low over the ground, removing to the distance of a hundred yards, alight running as it were, advance twenty or thirty steps more, and then stand still. I would now again approach it as before. Never try it the third time, Reader, the Kildeer will denounce you as an enemy. It will stretch its wings, fly across a river or field, and leave you to amuse yourself as you may. Many a time have I been thus treated.

The flight of the Kildeer is strong and rapid, and is at times protracted to a great distance. It skims quite low over the ground, or plays at a great height in the air, particularly during the love season, when you may see these birds performing all sorts of evolutions on wing. On the ground their speed is such that it has become proverbial, and to "run like a Kildee," is to move with the utmost possible agility. Their ordinary posture when standing, might be called stiff, were they not so beautiful in form and colouring. When pursued over a large space, they are able to lead you from one spot to another more than twenty times in the course of an hour; and the more you follow them, the more shy do they become, until wearied and hungry, as the fox said of the grapes, you will probably begin to think them poor and insipid after all.

Now you see the Kildee wading in the water, and observe how it splashes it about. Down it lays itself, and with fluttering wings, seems to enjoy the sight of the drops trickling over its silky back. Now dripping and almost soaked to the skin, it retires to the warm earth, to dry its plumage and clear it of insects.

This species breeds in Louisiana about the beginning of April; in the Middle States a full month later, as well as in the Western Country and farther north. Not one, however, has ever been found breeding in the low lands of South Carolina, although these birds remain there until the beginning of May. The nests are various, some being merely a hollow scooped in the bare ground, while at other times the Kildee searches for a place on the edge of a pond, forms a hollow, and constructs a nest of grass, at the foot of a thick bunch of plants. Now and then small pebbles and fragments of shells are raised in the form of a rim around the eggs, on which the sitting bird is seen as if elevated two or three inches. WILSON saw nests of this kind; so have I; and the circumstance appeared as strange to me as that of the birds not breeding in the low lands of the Carolinas. The eggs are almost always four, pyriform, well pointed at the small end, an inch and five-eighths in length, an inch and one eighth in diameter at the broadest part, and of a deep cream colour, pretty generally marked all over with small irregular blotches of purplish-brown and black. The young, as soon as hatched, run about. At this period, or during incubation, the parents, who sit alternately on the eggs, never leaving them to the heat of the sun, are extremely clamorous at sight of an enemy. The female droops her wings, emits her plaintive notes, and endeavours by every means she can devise to draw you from

the nest or young. The male dashes over you in the air, in the manner of the European Lapwing, and vociferates all the remonstrances of an angry parent whose family is endangered. If you cannot find pity for the poor birds at such a time, you may take up their eggs and see their distress; but if you be at all so tender-hearted as I would wish you to be, it will be quite unnecessary for me to recommend mercy!

Few Plovers with which I am acquainted, acquire their full plumage sooner than this species. Before December you can observe no difference between the young birds and their parents; nay by this time, like most other species, the former are as fully able to fly as at any other period.

While I was residing in Pennsylvania, the son of my tenant the miller was in the habit of catching newly-hatched birds of every sort, to bait his fish-hooks. I had rather peremptorily remonstrated against this barbarous practice, although, I believe, without effect. One morning I met him returning from the shores of the Perkioming Creek, with his hat full of young Kildees. He endeavoured to avoid me, but I made directly up to him, peeped into his hat and saw the birds. On this I begged of him to go back and restore the poor things to their parents, which he reluctantly did. Never had I felt more happy than I did when I saw the young Plovers run off and hide under cover of the stones.

The Kildee seems to be remarkably attached to certain localities at particular periods. Whilst at General HERNANDEZ's in East Florida, I accidentally wounded one near a barn on the plantation of my accomplished host. Yet it returned to the same spot for the ten days that I remained there, although it always flew off when I approached it.

The food of this species consists of earth-worms, grass-hoppers, crickets, and coleopterous insects, as well as small crustacea, whether of salt or fresh water, and snails. Now and then they may be seen thrusting their bills into the mud about oysters, in search of some other food. During autumn, they run about the old fields and catch an insect which the Blue Bird has been watching with anxious care from the top of a withering mullein stalk. They run briskly after the ploughman, to pick up the worms that have been turned out of their burrows. Now standing on the grassy meadow, after a shower, you see them patting the moist ground, to force out its inhabitants. During winter, you meet with them on elevated ground, or along the margins of the rivers; but wherever you observe one about to pick up its food, you clearly see its body moving in a see-saw manner on the joints of the legs, until the former being

so placed that the bill can reach the ground, the object is seized, and the usual horizontal position is resumed.

The flesh of the Kildee is generally indifferent, unless in early autumn, when the young birds of that season are fat, juicy and tender. At all seasons of the year, the Kildee is however shot by inexperienced sportsmen, and many of these birds are offered for sale in our markets. Little difference is observed at any period in the plumage of the adult birds.

CHARADRIUS VOCIFERUS, *Linn. Syst. Nat.* vol. i. p. 253.—*Lath. Ind. Ornith.* vol. ii. p. 742.—*Ch. Bonaparte, Synopsis of Birds of the United States* p. 297.—*Swains. and Richards. Fauna Bor. Amer.* part ii. p. 368.

KILDEER PLOVER, CHARADRIUS VOCIFERUS, *Wils. Amer. Ornith.* vol. vii. p. 73. pl. 59. fig. 6.—*Nuttall, Manual*, vol. ii. p. 22.

Adult Male in summer. Plate CCXXV. Fig. 1.

Bill shorter than the head, straight, somewhat cylindrical. Upper mandible with the dorsal line straight for two-thirds of its length, then bulging a little and curving to the tip, which is rather acute, the sides flat and sloping at the base, convex towards the end, where the edges are sharp and inclinate. Nasal groove extended along two-thirds of the mandible, filled with a bare membrane; nostrils basal, linear, in the lower part of the membrane, open, and pervious. Lower mandible with the angle long, narrow, but rounded, the sides at the base sloping outwards and flat, the dorsal line ascending and slightly convex, the edges sharp and involute towards the narrow tip.

Head of moderate size, oblong, rather compressed, the forehead rounded. Eyes large. Neck rather short. Body ovate, rather slender. Wings long. Feet long,* slender; tibia bare a considerable way above the joint; tarsus rather compressed, covered all round with reticulated hexagonal scales; toes slender; the hind toe wanting; third or middle toe longest, outer toe considerably longer than inner, all scutellate above and marginate, the outer connected with the middle toe by a membrane as far as the second joint; claws small, compressed, slender but obtuse at the end, the inner edge of the middle claw slightly dilated.

Plumage soft and blended; the feathers rounded, those of the back somewhat distinct. Wings long and pointed; primary quills tapering, the first longest, the second a little shorter, the rest rapidly graduated; inner secondaries tapering and elongated, so as nearly to equal the longest

primaries. Tail rather long, much rounded or graduated, of twelve rather broad rounded feathers.

Bill black. Edges of eyelids bright red; iris dark brown. Feet light greyish-blue, the hind part of the tarsus pale flesh colour. Upper part of the head, the back, the smaller wing-coverts, and the secondary quills, yellowish-brown. Lower parts white. A brown bar over the lower part of the forehead, and passing under the eye to the occiput; over this a white band on the forehead, surmounted by a brownish-black band between the eyes; behind the eyes also a short white band, ending in light red. The middle of the neck is encircled with a broad brownish-black collar, and on its lower part anteriorly between the wings is a narrower band of the same colour. Primaries brownish-black, each with a white mark, linear on the outer, enlarging on the inner quills. Secondaries, excepting the inner, white, but most of them with a large patch of blackish-brown towards the end; their tips and those of most of the primaries white, as are those of the primary and secondary coverts. Rump and upper tail-coverts bright yellowish-red. Tail-feathers of the same colour at the base, the middle feathers brown, all with a broad subterminal band of black, the tips white, those of the four middle feathers pale reddish; the outer feather on each side white, with three black bands on the inner web.

Length to end of tail 10 inches, to end of wings 9, to end of claws $9\frac{1}{2}$; extent of wings 20; wing from flexure $6\frac{1}{2}$; tail 4; bill along the back $1\frac{9}{16}$, along the edge $1\frac{11}{16}$; tarsus $1\frac{5}{8}$; middle toe $1\frac{1}{8}$, its claw $\frac{1}{2}$. Weight $5\frac{3}{4}$ ounces.

Adult Female in summer. Plate CCXXV. Fig. 2.

The Female resembles the Male.

THE WHITE PERCH AND ITS FAVOURITE BAIT.

No sooner have the overflowing waters of early spring subsided within their banks, and the temperature become pleasant, than the trees of our woods are seen to unfold their buds and blossoms, and the White Perch, which during the winter has lived in the ocean, rushes up our streams, to seek the well-known haunts in which it last year deposited its spawn. With unabating vigour it ascends the turbulent current of the Mississippi, of which, however, the waters are too muddy to suit its habits; and glad no doubt is it to enter one of the numberless tributaries whose limpid waters are poured into the mighty river. Of these subsidiary waters the Ohio is one in whose pure stream the White Perch seems to delight; and towards its head springs the fish advances in numerous shoals, following the banks with easy progress. Over many a pebbly or gravelly bar does it seek its food. Here the crawling mussel it crunches and devours; there, with the speed of an arrow, it darts upon the minnow; again, at the edge of a shelving rock, or by the side of a stone, it secures a cray-fish. No impure food will "the Growler" touch; therefore, reader, never make use of such to allure it, otherwise not only will your time be lost, but you will not enjoy the gratification of tasting this delicious fish. Should you have no experience in fishing for perch, I would recommend to you to watch the men you see on that shore, for they are excellent anglers.

Smooth are the waters, clear is the sky, and gently does the stream move,—perhaps its velocity does not exceed a mile in the hour. Silence reigns around you. See, each fisher has a basket or calabash, containing many a live cray; and each line, as thick as a crow quill, measures scarce a furlong. At one end two perch hooks are so fastened that they cannot interfere with each other. A few inches below the reaching point of the farthest hook, the sinker, perhaps a quarter of a pound in weight, having a hole bored through its length, is passed upon the line, and there secured by a stout knot at its lower extremity. The other end of the line is fastened ashore. The tackle, you observe, is carefully coiled on the sand at the fisher's feet. Now on each hook he fixes a cray-fish, piercing the shell beneath the tail, and forcing the keen weapon to reach the very head of

the suffering creature, while all its legs are left at liberty to move. Now, each man, holding his line a yard or so from the hooks, whirls it several times overhead, and sends it off to its full length directly across the stream. No sooner has it reached the gravelly bed, than gently urged by the current, it rolls over and over, until it is nearly in the line of the water. Before this, however, I see that several of the men have had a bite, and that by a short jerk they have hooked the fish. Hand over hand they haul in their lines. Poor perch, it is useless labour for thee to flounce and splash in that manner, for no pity will be shewn thee, and thou shalt be dashed on the sand, and left there to quiver in the agonies of death. The lines are within a few yards of being in. I see the fish gasping on its side. Ah! there are two on this line, both good; on most of the others there is one; but I see some of the lines have been robbed by some cunning inhabitant of the water. What beautiful fishes these perches are! so silvery beneath, so deeply coloured above! What a fine eye too! But, friend, I cannot endure their gaspings. Pray put them on this short line, and place them in the water beside you, until you prepare to go home. In a few hours each fisher has obtained as many as he wishes. He rolls up his line, fastens five or six perches on each side of his saddle, mounts his horse, and merrily wends his way.

In this manner the White Perch is caught along the sandy banks of the Ohio, from its mouth to its source. In many parts above Louisville some fishers prefer using the trot-line, which, however, ought to be placed upon, or very little above, the bottom of the stream. When this kind of line is employed, its hooks are more frequently baited with mussels than with cray-fish, the latter being perhaps not so easily procured there as farther down the stream. Great numbers of perches are also caught in seines, especially during a transient rise of the water. Few persons fish for them with the pole, as they generally prefer following the edges of the sand-bars next to deep water. Like all others of its tribe, the White Perch is fond of depositing its spawn on gravelly or sandy beds, but rarely at a depth of less than four or five feet. These beds are round, and have an elevated margin formed of the sand removed from their centre, which is scooped out for two or three inches. The fish, although it generally remains for some days over its treasure, is by no means so careful of it as the little sunny, but starts off at the least appearance of danger. I have more than once taken considerable pleasure in floating over their beds, when the water was sufficiently clear to admit of my seeing both the fish

and its place of deposit ; but I observed that if the sun was shining, the very sight of the boat's shadow drove the perches away. I am of opinion that most of them return to the sea about the beginning of November ; but of this I am not certain.

The usual length of this fish, which on the Ohio is called the White Perch, and in the State of New York the Growler, is from fifteen to twenty inches. I have, however, seen some considerably larger. The weight varies from a pound and a half to four, and even six pounds. For the first six weeks of their arrival in fresh water streams they are in season ; the flesh is then white and firm, and affords excellent eating ; but during the heats of summer, they become poor, and are seldom very good. Now and then, in the latter days of September, I have eaten some that tasted as well as in spring. One of the most remarkable habits of this fish is that from which it has received the name of Growler. When poised in the water, close to the bottom of a boat, it emits a rough croaking noise, somewhat resembling a groan. Whenever this sound is heard under a boat, if the least disturbance is made by knocking on the gunwale or bottom, it at once ceases ; but is renewed when every thing is quiet. It is seldom heard, however, unless in fine calm weather.

The White Perch bites at the hook with considerable care, and very frequently takes off the bait without being caught. Indeed, it requires a good deal of dexterity to hook it, for if this is not done the first time it touches the bait, you rarely succeed afterwards ; and I have seen young hands at the game, who, in the course of a morning, seldom caught more than one or two, although they lost perhaps twenty crays. But, now that I have afforded you some information respecting the habits of the White Perch, allow me to say a few words on the subject of its favourite bait.

The Cray is certainly not a fish, although usually so styled ; but as every one is acquainted with its form and nature, I shall not inflict on you any disquisition regarding it. It is a handsome crustaceous animal certainly, and its whole tribe I consider as dainties of the first order. To me "*Ecrevisses*," whether of fresh or of salt water, stripped of their coats, and blended into a soup or a "gombo," have always been most welcome. Boiled or roasted too, they are excellent in my estimation, and mayhap in yours. The Crayfish, of which I here more particularly speak—for I shall not deprive them of their caudal appendage, lest, like a basha without his tail, they might seem of less consequence—are found most abun-

dantly swimming, crawling at the bottom or on shore, or working at their muddy burrows, in all the southern parts of the Union. If I mistake not, we have two species at least, one more an inhabitant of rocky streamlets than the other, and that one by far the best, though the other is good too. Both species swim by means of rapid strokes of the tail, which propel them backwards to a considerable distance at each repetition. All that I regret concerning these animals is, that they are absolutely little aquatic vultures—or, if you please, crustacea with vulturine habits—for they feed on every thing impure that comes in their way, when they cannot obtain fresh aliment. However this may be, the Crays somehow fall in with this sort of food, and any person may catch as many as he may wish, by fastening a piece of flesh to a line, allowing it to remain under water for a while, and drawing it up with care, when, with the aid of a hand-net, he may bring it ashore with *a few* ! But although this is a good method of procuring Cray-fish, it answers only for those that live in running waters. The form of these is delicate, their colour a light olive, and their motions in the water are very lively. The others are larger, of a dark greenish-brown, less active in the water than on land, although they are most truly amphibious. The first conceal themselves beneath shelving rocks, stones, or water-plants ; the others form a deep burrow in the damp earth, depositing the materials drawn up, as a man would do in digging a well. The manner in which they dispose of the mud you may see by glancing at the plate of the White Ibis, in my third volume of Illustrations, where also you will find a tolerable portrait of one of these creatures.

According to the nature of the ground, the burrows of this Crayfish are more or less deep. Indeed, this also depends partly on the increasing dryness of the soil, when, influenced by the heat of summer, as well as on the texture of the substratum. Thus, in some places, where the Cray can reach the water after working a few inches, it rests contented during the day, but crawls out for food at night. Should it, however, be left dry, it renews its labour ; and thus while one burrow may be only five or six inches deep, another may be two or three feet, and a third even more. They are easily procured when thus lodged in shallow holes ; but when the burrow is deep, a thread is used, with a small piece of flesh fastened to it. The Cray eagerly seizes the bait, and is gently drawn up, and thrown to a distance, when he becomes an easy prey. You have read of the method used by the White Ibis in procuring Crays ; and I leave you

to judge whether the bird or the man is the best fisher. This species is most abundant round the borders of the stagnant lakes, bayous, or ponds of the Southern Districts; and I have seen them caught even in the streets of the suburbs of New Orleans, after a heavy shower. They become a great pest by perforating embankments of all sorts, and many are the maledictions that are uttered against them both by millers and planters, nay even by the overseers of the levees along the banks of the Mississippi. But they are curious creatures, formed no doubt for useful purposes, and as such they are worthy of your notice.

THE WHOOPING CRANE.

GRUS AMERICANA, TEMM.

PLATE CCXXVI. MALE.

THE variegated foliage of the woods indicates that the latter days of October have arrived ; gloomy clouds spread over the heavens ; the fierce blasts of the north, as if glad to escape from the dreary regions of their nativity, sport in dreadful revelry among the forests and glades. Showers of sleet and snow descend at intervals, and the careful husbandman gathers his flocks, to drive them to a place of shelter. The traveller gladly accepts the welcome of the forester, and as he seats himself by the blazing fire, looks with pleasure on the spinning wheels of the industrious inmates. The lumberer prepares to set out on his long voyage, the trapper seeks the retreats of the industrious beaver, and the red Indian is making arrangements for his winter hunts. The Ducks and Geese have already reached the waters of the western ponds ; here a Swan or two is seen following in their train, and as the observer of nature stands watching the appearances and events of this season of change, he hears from on high the notes of the swiftly travelling but unseen Whooping Crane. Suddenly the turbid atmosphere clears, and now he can perceive the passing birds. Gradually they descend, dress their extended lines, and prepare to alight on the earth. With necks outstretched, and long bony legs extended behind, they proceed supported by wings white as the snow but tipped with jet, until arriving over the great savannah they wheel their circling flight, and slowly approach the ground, on which with half-closed wings, and outstretched feet they alight, running along for a few steps to break the force of their descent.

Reader, see the majestic bird shake its feathers, and again arrange them in order. Proud of its beautiful form, and prouder still of its power of flight, it stalks over the withering grasses with all the majesty of a gallant chief. With long and measured steps he moves along, his head erect, his eye glistening with delight. His great journey is accomplished, and being well acquainted with a country which has often been visited by him, he at once commences his winter avocations.

The Whooping Crane reaches the Western Country about the middle of October, or the beginning of November, in flocks of twenty or thirty individuals, sometimes of twice or thrice that number, the young by themselves, but closely followed by their parents. They spread from Illinois over Kentucky, and all the intermediate States, until they reach the Carolinas on the southern coast, the Floridas, Louisiana, and the countries bordering on Mexico, in all of which they spend the winter, seldom returning northward until about the middle of April, or towards the beginning of May. They are seen on the edges of large ponds supplied with rank herbage, on fields or savannahs, now in swampy woods, and again on extensive marshes. The interior of the country, and the neighbourhood of the sea shores, suit them equally well, so long as the temperature is sufficiently high. In the Middle States, it is very seldom indeed that they are seen; and to the eastward of these countries they are unknown; for all their migrations are performed far inland, and thus they leave and return to the northern retreats where, it is said, they breed and spend the summer. While migrating they appear to travel both by night and by day, and I have frequently heard them at the former, and seen them at the latter time, as they were proceeding toward their destination. Whether the weather be calm or tempestuous, it makes no difference to them, their power of flight being such as to render them regardless of the winds. Nay I have observed them urging their way during very heavy gales, shifting from high to low in the air with remarkable dexterity. The members of a flock sometimes arrange themselves in the form of an acute-angled triangle; sometimes they move in a long line; again they mingle together without order, or form an extended front; but in whatever manner they advance, each bird sounds his loud note in succession, and on all occasions of alarm these birds manifest the same habit. While with us they are also always met with in flocks. But now, Reader, allow me to refer to my journals, whence I shall extract some circumstances relative to this majestic bird, which I hope you will find not uninteresting.

Louisville, State of Kentucky, March 1810.—I had the gratification of taking ALEXANDER WILSON to some ponds within a few miles of town, and of shewing him many birds of this species, of which he had not previously seen any other than stuffed specimens. I told him that the white birds were the adults, and that the grey ones were the young. WILSON, in his article on the Whooping Crane, has alluded to this, but,

as on other occasions, has not informed his readers whence the information came.

Henderson, November 1810.—The Sand Hill Crane arrived at the Long Pond on the 28th of last month. I saw two flocks of young ones there, and one of adults on the Slim Pond. Both old and young immediately set to digging through the mud, the rains having scarcely begun to cover those places with water, for during summer they become almost dry. The birds work very assiduously with their bills, and succeed in uncovering the large roots of the great water-lily, which often run to a depth of two or three feet. Several cranes are seen in the same hole, tugging at roots and other substances, until they reach the object of their desire, which they greedily devour. While thus engaged, they are easily approached; for if their heads are bent down they cannot see you, and until they raise themselves again, to take notice of what may be going on around the place, you may advance so as to get within shot. While I watched them at this work, they were perfectly silent; and as I lay concealed behind a large cypress tree, within thirty paces of a flock, thus buried, as it were, in the great holes they had formed, so as to put me in mind of a parcel of hogs or bears at their wallowing spots, I could plainly see the colour of their eyes, which is brown in the young, and yellow in the adult. After observing them as long as I wished, I whistled, on which they all at once raised their heads to see what the matter might be. I had so fair an opportunity that I could not resist the temptation, especially as several of the birds had their necks so close together that I felt confident I must kill more than one of them. Accordingly, just as their last croaking notes were heard, and I saw them preparing to set to work again, I fired. Only two flew up, to my surprise. They came down the pond towards me, and my next shot brought them to the ground. On walking to the hole, I found that I had disabled seven in all. Those which were in different holes farther off, all flew away, uttering loud cries, and did not return that afternoon. In the course of a week these birds turned up the earth, and dug holes all over the dry parts of the ponds. As soon as heavy rains fill the pools, the Cranes abandon them, and resort to other places.

Natchez, November 1821.—The Sand-hill Cranes now resort to the fields, in which corn, pease, and sweet potatoes have been planted, as well as to the cotton plantations. They feed on the grains and pease, dig up the potatoes, which they devour with remarkable greediness; and in the

wet fields seize on water insects, toads and frogs, but never, I believe, on fishes.

Bayou Sara, April 12. 1822.—The Sand-hill Cranes have left all the fields, and removed to the swamps and inner lakes. I saw some catching young bull-frogs, water-lizards, and water-snakes, as well as very small alligators. One struck at a young snapping turtle, which, however, escaped. The Wood Ibises and these birds do not agree together; the latter chase the former up to their bellies in the water.

April 16.—I saw nine beautiful adult birds apparently in perfect plumage. They were round a fallen log, about twenty yards from the water, all very busily occupied in killing a band of young alligators, which had probably endeavoured to save themselves from the attacks of the Cranes by crawling beneath the sides of the log. I shot at them without much effect, for, although I believe I wounded two of them, they all flew off. On going up to the log, I found several young alligators, measuring from seven to eight inches in length, apparently dead, with their heads sadly bruised as if by a powerful blow. This led me to think that they kill a number of animals before they feed upon them, as the Wood Ibis is wont to do. This afternoon I saw four of these young Cranes tearing up the ground in search of cray-fish. One caught a butterfly as it was fluttering near, and instantly swallowed it.

This species feeds only during the day. Besides the objects which I have already mentioned, it now and then swallows a mole or a meadow-mouse, and not unfrequently, I think, snakes of considerable length. I opened one that had a garter-snake, more than fifteen inches long, in its stomach.

The wariness of this species is so remarkable, that it takes all the cunning and care of an Indian hunter to approach it at times, especially in the case of an old bird. The acuteness of their sight and hearing is quite wonderful. If they perceive a man approaching, even at the distance of a quarter of a mile, they are sure to take to wing. Should you accidentally tread on a stick and break it, or suddenly cock your gun, all the birds in the flock raise their heads and emit a cry. Shut the gate of a field after you, and from that moment they all watch your motions. To attempt to crawl towards them, even among long grass, after such an intimation, would be useless; and unless you lie in wait for them, and be careful to maintain a perfect silence, or may have the cover of some large trees, heaps of brushwood, or fallen logs, you may as well stay at home.

They generally see you long before you perceive them, and so long as they are aware that you have not observed them, they remain silent; but the moment that, by some inadvertency, you disclose to them your sense of their presence, some of them sound an alarm. For my part, Reader, I would as soon undertake to catch a deer by fair running, as to shoot a Sand-hill Crane that had observed me. Sometimes, indeed, towards the approach of spring, when they are ready to depart for their breeding grounds, the voice of one will startle and urge to flight all within a mile of the spot. When this happens, all the birds around join into a great flock, gradually rise in a spiral manner, ascend to a vast height, and sail off in a straight course.

When wounded, these birds cannot be approached without caution, as their powerful bill is capable of inflicting a severe wound. Knowing this as I do, I would counsel any sportsman not to leave his gun behind, while pursuing a wounded Crane. One afternoon in winter, as I was descending the Mississippi, on my way to Natchez, I saw several Cranes standing on a large sand-bar. The sight of these beautiful birds excited in me a desire to procure some of them. Accordingly, taking a rifle and some ammunition, I left the flat-bottomed boat in a canoe, and told the men to watch for me, as the current was rapid at that place, the river being there narrowed by the sand-bar. I soon paddled myself to the shore, and having observed, that, by good management, I might approach the Cranes under cover of a huge stranded tree, I landed opposite to it, drew up my canoe, and laying myself flat on the sand, crawled the best way I could, pushing my gun before me. On reaching the log, I cautiously raised my head opposite to a large branch, and saw the birds at a distance somewhat short of a hundred yards. I took, as I thought, an excellent aim, although my anxiety to shew the boatmen how good a marksman I was rendered it less sure than it might otherwise have been. I fired, when all the birds instantly flew off greatly alarmed, excepting one which leaped into the air, but immediately came down again, and walked leisurely away with a drooping pinion. As I rose on my feet, it saw me, I believe, for the first time, cried out lustily, and ran off with the speed of an ostrich. I left my rifle unloaded, and in great haste pursued the wounded bird, which doubtless would have escaped had it not made towards a pile of drift wood, where I overtook it. As I approached it, panting and almost exhausted, it immediately raised itself to the full stretch of its body, legs, and neck, ruffled its feathers, shook them, and

advanced towards me with open bill, and eyes glancing with anger. I cannot tell you whether it was from feeling almost exhausted with the fatigue of the chase; but, however it was, I felt unwilling to encounter my antagonist, and keeping my eye on him, moved backwards. The farther I removed, the more he advanced, until at length I fairly turned my back to him, and took to my heels, retreating with fully more speed than I had pursued. He followed, and I was glad to reach the river, into which I plunged up to the neck, calling out to my boatmen, who came up as fast as they could. The Crane stood looking angrily on me all the while, immersed up to his belly in the water, and only a few yards distant, now and then making thrusts at me with his bill. There he stood until the people came up; and highly delighted they were with my situation. However, the battle was soon over, for, on landing, some of them struck the winged warrior on the neck with an oar, and we carried him on board.

While in the Floridas, I saw only a few of these birds alive, but many which had been shot by the Spaniards and Indians, for the sake of their flesh and beautiful feathers, of which latter they make fans and fly-brushes. None of these birds remain there during summer; and WILLIAM BARTRAM, when speaking of this species, must have mistaken the Wood Ibis for it.

The young are considerably more numerous than the old white birds; and this circumstance has probably led to the belief among naturalists that the former constitute a distinct species, to which the name of Canada Crane, *Grus canadensis*, has been given. This, however, I hope, I shall be able to clear up to your satisfaction. In the mean time, I shall continue my remarks.

According to circumstances, this species roosts either on the ground or on high trees. In the latter case, they leave their feeding-ground about an hour before sun-set, and going off in silence, proceed towards the interior of high land forests, where they alight on the largest branches of lofty trees, six or seven settling on the same branch. For half an hour or so, they usually dress their plumage, standing erect: but afterwards they crouch in the manner of Wild Turkeys. In this situation they are sometimes shot by moonlight. Those which resort to plantations, situated in the vicinity of large marshes, covered with tall grasses, cat's tails, and other plants, spend the night on some hillock, standing on one leg, the other being drawn under the body, whilst the head is thrust

beneath the broad feathers of the shoulder. In returning towards the feeding grounds, they all emit their usual note, but in a very low undertone, leaving their roost at an earlier or later hour, according to the state of the weather. When it is cold and clear, they start very early ; but when warm and rainy, not until late in the morning. Their motions toward night are determined by the same circumstances. They rise easily from the ground after running a few steps, fly low for thirty or forty yards, then rise in circles, crossing each other in their windings, like Vultures, Ibises, and some other birds. If startled or shot at, they utter loud and piercing cries. These cries, which I cannot compare to the sounds of any instrument known to me, I have heard at the distance of three miles, at the approach of spring, when the males were paying their addresses to the females, or fighting among themselves. They may be in some degree represented by the syllables *kewrr*, *kewrr*, *kewrooh* ; and strange and uncouth as they are, they have always sounded delightful in my ear.

In December 1833, I sent my son to Spring Island, on the coast of Georgia, to which these birds are in the habit of resorting every winter. Mr HAMMOND, the proprietor of this island, treated him with all the hospitality for which the southern planters are celebrated. The Cranes, which were plentiful, resorted to the sweet potato fields, digging up their produce as expertly as a troop of negroes. They walked carefully over the little heaps, probed them in various parts in the manner of Woodcocks or Snipes, and whenever they hit upon a potato, removed the soil, took out the root, and devoured it in rather small pieces. In this manner they would search over the whole field, which was two miles in length, and rather more than a quarter of a mile in breadth, gleaning all the potatoes that had escaped the gatherers. They were so shy, however, that notwithstanding all the endeavours of my son, who is a good hand at getting in upon game, as well as a good shot, he only killed a young one, which was evidently of that year's brood, it being yet almost reddish-brown, the long feathers of the rump just beginning to shew, and the head yet covered with hairlike feathers to the mandible, and merely shewing between them the wrinkled skin so conspicuous in the old birds. The specimen procured on Spring Island was carefully examined and described, and the skin is now in the British Museum in London. Its flesh was tender and juicy, of a colour resembling that of young venison, and afforded excellent eating. This I have always found to be the case with young

birds of this species, so long as they are in their brown livery, and even when they have begun to be patched with white ; but in old birds the flesh becomes very dark, tough and unfit for the table, although the Seminole Indians shoot them on all occasions for food.

In captivity the Whooping Crane becomes extremely gentle, and feeds freely on grain and other vegetable substances. A Mr MAGWOOD, residing near Charleston, in South Carolina, kept one for some time feeding it on maize. It accidentally wounded one of its feet on the shell of an oyster, and, although the greatest care was taken of it, died after lingering some weeks. Having myself kept one alive, I will give you an account of its habits.

It was nearly full-grown when I obtained it, and its plumage was changing from greyish-brown to white. Its figure you will see in the plate to which this article refers. I received it as a present from Captain CLACK of the United States Navy, commander of the Erie sloop of war. It had been wounded in the wing, on the coast of Florida, but the fractured limb had been amputated and soon healed. During a voyage of three months, it became very gentle, and was a great favourite with the sailors. I placed it in a yard, in company with a beautiful Snow Goose. This was at Boston. It was so gentle as to suffer me to caress it with the hand, and was extremely fond of searching for worms and grubs about the wood pile, probing every hole it saw with as much care and dexterity as an Ivory-billed Woodpecker. It also watched with all the patience of a cat the motions of some mice which had burrows near the same spot, killed them with a single blow, and swallowed them entire, one after another, until they were extirpated. I fed it on corn and garbage from the kitchen, to which were added bits of bread and cheese, as well as some apples. It would pick up the straws intended to keep its feet from being soiled, and arrange them round its body, as if intent on forming a nest. For hours at a time, it would stand resting on one foot in a very graceful posture ; but what appeared to me very curious was, that it had a favourite leg for this purpose ; and in fact none of my family ever found it standing on the other, although it is probable that this happened in consequence of the mutilation of the wing, the leg employed being that of the injured side. The stump of its amputated wing appeared to be a constant source of trouble, particularly at the approach of the winter : it would dress the feathers about it, and cover it with so much care, that I really felt for the poor fellow. When the weather became intense-

ly cold, it regularly retired at the approach of night under a covered passage, where it spent the hours of darkness ; but it always repaired to this place with marked reluctance, and never until all was quiet and nearly dark, and it came out, even when the snow lay deep on the ground, at the first appearance of day. Now and then it would take a run, extend its only wing, and, uttering a loud cry, leap several times in the air, as if anxious to return to its haunts. At other times it would look upwards, cry aloud as if calling to some acquaintance passing high in the air, and again use its ordinary note whenever its companion the Snow Goose sent forth her own signals. It seldom swallowed its food without first carrying it to the water, and dipping it several times, and now and then it would walk many yards for that express purpose. Although the winter was severe, the thermometer some mornings standing as low as 10°, the bird fattened and looked extremely well. So strong was the natural suspicion of this bird, that I frequently saw it approach some cabbage leaves with measured steps, look at each sideways before it would touch one of them, and after all, if it by accident tossed the leaf into the air when attempting to break it to pieces, it would run off as if some dreaded enemy were at hand.

The trachea of this bird, of which you will find a notice at p. 213, confirms my opinion that the Canada Crane and the Whooping Crane are merely the same species in different states of plumage, or in other words, at different ages ; and, in truth, the differences are not greater than those exhibited by many other birds, both aquatic and terrestrial. In illustration of this subject I might adduce Ibises, Herons, Divers, and Grebes ; but this is quite unnecessary.

In reading the accounts given of the Canada Crane of authors, I find no description of its manner of breeding. In the *Fauna Boreali-Americana* of Mr SWAINSON and Dr RICHARDSON, the eggs of both are described, and in NUTTALL's *Manual* those of the Whooping Crane also ; but in these works the account given of the birds and of their eggs is such, that one might even, from comparing the descriptions, suppose them to be of the same species. I have never had the satisfaction of finding any of the breeding-places of the Whooping Crane ; but I well know that many birds breed long before they have attained their full plumage. The supposed new species of Heron described under the name of *Ardea Pealii*, by my excellent friend Prince CHARLES BONAPARTE, breeds as the White-headed Eagle sometimes does, the immature bird in a snow-white dress,

the adult in purple and greyish-blue plumage. The young of *Ardea cærulea* were for some time considered to form a distinct species, they being white also, then blue and white, and finally dark blue. But the most remarkable instance of change of plumage in the Traders is exhibited in the Scarlet Ibis. My humble opinion is, that unless in cases where birds are at first of one colour, and that colour remains ever after, little dependence can be placed on the tints of the plumage as a specific character.

On looking over my notes, I find that I have omitted to inform you that the extraordinary strength of the thighs, legs, and feet of the Whooping Crane, tends greatly to make it more terrestrial than the Herons; and that the great size of their nostrils, which so much resemble those of the Vultures, is well adapted to keep the inner parts of the organ from the damp earth and other matters with which they are so often in contact, while searching in the ground or mud for roots and other vegetable substances, on which the bird principally feeds. I am convinced also, that this species does not attain its full size or perfect plumage until it is four or five years old. The beauty of the plumage may be improved in brilliancy during the breeding-season by a greater brightness in the colour of the bill, as in the Booby Gannet and White Ibis, as well as in the redness of the fleshy parts of the head.

The measurements of the adult bird of my plate, drawn at New Orleans, in the month of April, were as follows:—Length from tip of bill to end of claws, 5 feet 5 inches; to end of tail, 4 feet 6 inches; the drooping feathers 1 foot beyond; alar extent 7 feet 8 inches; length of wing 22 inches; naked part of thigh 5 inches; tarsus $11\frac{1}{4}$ inches; length of middle toe $4\frac{1}{4}$, of its claw $\frac{3}{4}$.

The measurements of the specimen kept at Boston:—Length from tip of bill to end of tail, 3 feet 9 inches; to end of claws, 4 feet 6 inches; tarsus 8 inches; naked part of thigh $3\frac{1}{4}$. The elongated inner secondaries equalled the tail. The weight was 9 lb. $14\frac{1}{2}$ oz.

Measurements of that killed on Spring Island:—Length 4 feet $4\frac{1}{2}$ inches, the claws being 7 inches beyond the tail, so that the length from the tip of the bill to the end of the tail was 3 feet $9\frac{1}{2}$ inches; alar extent 5 feet 8 inches. Weight $8\frac{1}{4}$ lb.

In the Museum of the University of Edinburgh, there is a specimen of still smaller size.

My friend JOHN BACHMAN, in a note addressed to me, says, "I saw

a pair of tame birds of this species, which, as they advanced in age, changed their colours from grey to white."

GRUS AMERICANA, *Ch. Bonaparte*, *Synops. of Birds of the United States*, p. 302.—

Swains. and Richards. Fauna-Bor. Amer. part ii. p. 372.

WHOOING CRANE, *ARDEA AMERICANA*, *Wils. Amer. Ornith. vol. vii. p. 20. pl. 64.*

fig. 3. Adult

GRUS CANADENSIS, *BROWN CRANE*, *Swains. and Richards. Fauna-Bor. Amer. part ii. p. 373.*

Adult Male. Plate CCXXVI.

Bill long, straight, rather slender, but strong, compressed, pointed. Upper mandible with the dorsal line nearly straight, a little concave at the middle, slightly declinate toward the tip, the ridge flat and rather broad as far as the middle, the sides sloping, towards the end convex, with a wide groove filled by a soft membrane, and extending nearly two-thirds of its length, the edges sharp but thick for two-thirds of its length, and very slightly serrated. Nostrils lateral, placed at about a third of the length of the bill from its base, oblong, large, pervious. Lower mandible with the angle narrow and very long, the sides perpendicular at the base, the edges straight and sharp.

Head small, compressed. Eyes of moderate size. Neck very long. Body rather slender. Feet very long; tibia long, bare to a large extent, and covered with transverse series of rectangular scales; tarsus very long, rather compressed, covered anteriorly with numerous oblique scutella, posteriorly with large, and laterally with small scales; toes rather small; the first very small, second and fourth nearly equal, third considerably longer, the third and fourth connected at the base by a web of considerable size, all marginate, covered above with numerous narrow scutella, beneath broad, flattened, and granulate; claws of moderate size, strong, considerably curved, rather compressed, that of hind toe much smaller, second and third largest, the latter with a groove on its inner edge.

Fore and upper part of head to the occiput papillar, and covered only with small hairs, as are the sides of the head. The plumage in general is soft, but distinctly imbricated; the feathers rounded, those of the neck short. Wings ample; the second primary longest, third and fourth nearly as long, first longer than fifth; inner secondaries and their coverts curved downwards, forming a beautiful bunch of loosely barbed feathers. Tail short, rounded, of twelve broad rounded feathers.

Bill dusky, towards the base yellow. Iris yellow. Bare part of head carmine, with the hairs black. Feet black. The plumage is pure white, excepting the alula, primaries, and primary coverts, which are brownish-black.

Length to end of tail 54 inches; to end of wings 53, to end of claws 65; extent of wings 92; wing from flexure $22\frac{1}{2}$; tail 7; bill along the ridge $5\frac{1}{2}$, along the edge of the lower mandible $5\frac{1}{2}$, bare part of tibia 5; tarsus $11\frac{1}{2}$; middle toe $4\frac{1}{2}$, its claw $\frac{3}{4}$.

The Young after its first autumnal moult has the sides of the head feathered behind the eye, and beneath to the base of the lower mandible; the curved secondaries and their coverts are tapering and elongated, but not nearly so much developed as in the old birds. The skin of the head is red; the bill brownish-black, as are the feet. Chin and sides of the head greyish-white. The plumage generally is bluish-grey, but the feathers are largely tipped and margined with yellowish-brown; the primary quills and their coverts dark brown towards the end; but with brownish-white shafts; the abdomen pure greyish-blue.

As the bird advances in age, the yellowish-brown disappears, and the general colour of the plumage becomes pure bluish-grey, which ultimately changes to white.

The trachea, which is 13 inches long to its entrance between the crura of the furcula, passes into a cavity in the sternum, where it curves so as to describe two-thirds of a circle, returns on the right side, and enters the thorax by curving backwards. The cavity in the sternum is 2 inches long, with an equal depth, and a breadth of $\frac{3}{4}$ inch. The ridge of the keel is at its fore part $\frac{3}{4}$ in breadth, and contracts to $\frac{1}{2}$ inch at its junction with the angle of the furcula, which is continuous with it. The gizzard is of moderate size; the intestine, which is thin and small, measures 5 feet in length. Boston specimen.

THE PINTAIL DUCK.

ANUS ACUTA, LINN.

PLATE CCXXVII. MALE AND FEMALE.

THE first observation that I made on arriving at Labrador, was that no species of Ducks, excepting those which were entirely or chiefly oceanic, seemed to resort to that coast, and I left the country with the same impression. We saw no Mallards, Teals, Widgeons, or Wood Ducks there; nor any species of Merganser, excepting the Red-breasted, which is a marine bird. The Pintail Duck, then, was not seen in the parts of that country which I visited; nor was it known in Newfoundland, on the Magdeleine Islands, or in the British province of Nova Scotia, at least along its Atlantic boundaries. In Kentucky and the whole of the Western Country, where it is extremely abundant in early autumn, during winter, and up to a very advanced period in spring, you meet with it wherever its usual food is found. It follows the waters of the Mississippi to New Orleans, is seen westward in the prairies of Oppelousas, and extends to the eastward as far as Massachusetts, beyond which, like the Mallard, it is very seldom seen. Indeed, this species is at all times rare on the sea coast of America, and must therefore be considered as an inland bird.

The Pintail, which, in the United States, is better known by the name of Sprigtail, arrives on the western waters early in October, sometimes even about the middle of September, the period of its arrival depending on the state of the weather, or the appearance of other species, with which it keeps company. Their plumage is in fine condition when they arrive; their tail-feathers are then as long as at any other period, and the whole apparel of the adult birds is as perfect as in the breeding season.

On the water, few birds exhibit more graceful motions than the Pintail Duck. Its delicately slender neck, the beautiful form of its body, and its pointed tail, which it always carries highly raised, distinguish it from the other species with which it may associate. There seems also a kind of natural modesty in it which you do not find in other ducks, and its notes, which are often heard, are soft and pleasant. That these notes should ever have been compared to those of the Mallard, appears to me

very strange ;—so strange that I am tempted to believe that they who say so must have mistaken Mallards for Pintails.

Whilst with us, the Pintail is found in company with the Baldpate or American Widgeon, the Blue-winged Teal, and the Mallard, more frequently on ponds than on streams, although it sometimes resorts to the latter, when their shores are overhung with beech-trees loaded with their nutritious fruits, of which this species is extremely fond, and in search of which they even ramble to a short distance into the woods. Were this duck to feed entirely on beech-nuts, I have no doubt that its flesh would be excellent. It feeds on tadpoles in spring, and leeches in autumn, while, during winter, a dead mouse, should it come in its way, is swallowed with as much avidity as by a Mallard. To these articles of food it adds insects of all kinds, and, in fact, it is by no means an inexpert fly-catcher.

The Pintails are less shy in the Western Country than most species of their family, and in this respect they resemble the Blue-winged Teals, which in fact might be called stupid birds with as much propriety as many others. They swim rather deeply, keep close together, and raise the hind part of the body like the Mallards; and on the water, on land, or on the wing, several may generally be killed at a shot. A friend of mine killed nineteen with two shots of his double-barrelled gun. They are scarcely nocturnal, but rest much in the middle of the day, basking in the sunshine whilst on the water, whenever they can indulge in this luxury. While on ponds, they feed along the most shallow parts, or by the edges; and if you take my advice, you will never shoot at them while their heads are at the bottom, and their feet kicking above water. I have several times, for diversion, done so, but in no instance did I damage a single individual. But when they raise their heads, you may commit great havock among them.

During heavy rains in winter, or after them, the Pintails are fond of alighting on our broad prairies, corn-fields and meadows; and in almost every puddle you may then find them busily engaged. They move over the ground as swiftly as Wood Ducks, still carrying their tail erect, unless when seizing an insect that is on wing or resting on a blade of grass. I knew a particular spot in a corn-field, not many miles from Bayou Sara in Louisiana, where, even after a shower, I was sure to meet with this species, and where I could always have produced a good number, had I thought them likely to be prized at the dinner-table. While I was at General HERNANDEZ's in Florida, the Pintails were very numerous. They alighted

everywhere, and I shot a few in order to satisfy myself that they were of the same species as those I had been accustomed to see. On one occasion I shot at a large flock swimming on a shallow pond in a large savannah, and wounded several, which I was surprised to see diving very expertly as I waded out for them, this species being by no means addicted to that practice. Those which I have now and then wounded, while in a boat and in deep water, soon gave up diving, and surrendered, without exhibiting any of those feats of cunning performed by other species.

The flight of the Pintails is very rapid, greatly protracted, and almost noiseless. They arrive in the Western Country mostly in the dusk of evening, and alight without much circumspection wherever they find water. They remain at night in the ponds where they feed, and continue there generally unless much disturbed. On such occasions they keep in the middle of the water, to avoid their land enemies; but the Virginian and Barred Owls not unfrequently surprise them, and force them to rise or make towards the shore, when they fall a prey to the nocturnal marauders. In the Middle States, they are highly esteemed for the table. There they arrive later and retire sooner towards their breeding-places, than in the country west of the Alleghany Mountains.

ANAS ACUTA, *Linm. Syst. Nat.* vol. i. p. 202.—*Lath. Ind. Ornith.* vol. ii. p. 864.—

Ch. Bonaparte, *Synops. of Birds of the United States*, p. 383.

PINTAIL DUCK, *ANAS ACUTA*, *Wils. Amer. Ornith.* vol. viii. p. 72. pl. 68. fig. 3.—

Nuttall, Manual, vol. ii. p. 386.

ANAS CAUDACUTA, PINTAIL DUCK, *Swains. and Richards. Fauna Bor. Amer.* part ii. p. 441.

Adult Male. Plate CCXXVII. Fig. 1.

Bill nearly as long as the head, deeper than broad at the base, depressed towards the end, the frontal angles short and obtuse. Upper mandible with the dorsal line at first sloping, then concave, towards the curved unguis nearly straight, the ridge broad and flat at the base, then broadly convex, the sides convex, the edges soft, with about fifty internal lamellæ; unguis small, somewhat triangular, curved abruptly at the broad end. Nostrils subbasal, lateral, rather small, oval, pervious. Lower mandible flattish, its angle very long and narrow, the dorsal line very short, slightly convex, the sides convex, the edges soft, with about sixty lamellæ.

Head of moderate size, compressed, the forehead rounded. Neck rather long and slender. Body full and depressed. Wings rather small. Feet very short, placed rather far back; tarsus very short, compressed, at its lower part anteriorly with two series of scutella, the rest covered with reticulated angular scales. Toes obliquely scutellate above; first very small, free, with a narrow membrane beneath; third longest; fourth a little shorter, their connecting webs entire, reticulated, at the edge pectinate; claws small, curved, compressed, acute, the hind one smaller and more curved, that of the third toe with an inner sharp edge.

Plumage dense, soft, blended. Feathers of the head and neck short, on the hind head and neck elongated. Wings narrow, of moderate length, acute, the first quill longest, the second nearly equal, the rest rapidly graduated; outer secondaries broad and rounded: inner elongated and tapering, as are their coverts, and the scapulars; first quill serrated on the outer edge, somewhat like that of an Owl. Tail of moderate length, tapering, of fourteen tapering feathers, of which the two middle project far beyond the rest.

Bill black, the sides of upper mandible light blue. Iris brown. Feet greyish-blue; claws black. Head, throat, and upper part of neck anteriorly greenish-brown, faintly margined behind with purplish-red; a small part of hind neck dark green; the rest, and the upper parts in general beautifully undulated with very narrow bars of brownish-black and yellowish-white, smaller wing-coverts, alula, and primary quills grey, the latter dark-brown towards the end; speculum of a coppery red, changing to dull green, edged anteriorly with light brownish red, posteriorly with white; the inner secondaries, and the scapulars, black and green, with broad grey margins. Upper tail-coverts cream-coloured, the outer webs blackish and green; tail light grey, the middle feathers dark brown, glossed with green. On each side of the neck is an oblique band of white, of which colour are the under parts in general, the sides however undulated like the back, the lateral feathers of the rump cream-coloured, the lower tail-coverts black, those at the sides edged with white.

Length to end of tail 29 inches; extent of wings 36; bill along the back $2\frac{2}{3}$, along the edge of lower mandible $2\frac{5}{8}$; tarsus $1\frac{1}{2}$, middle toe 2, its claw $\frac{1}{2}$; wing from flexure 11, tail $5\frac{1}{2}$. Weight 2 lb.

Adult Female. Plate CCXXVII. Fig. 2.

The Female, which is much smaller, has the upper parts variegated

with brownish-black and light yellowish-brown, the margin of the feathers, and a mark on each side of the shaft being of the latter colour ; the speculum is dusky green, margined behind with white ; the primary quills greyish-brown. The lower parts are of a light brownish-yellow, the sides variegated with brown, the bill is black, the iris brown, the feet light bluish-grey.

Length $22\frac{1}{4}$ inches, extent of wings 34. Weight 1 lb. 9 oz.

THE GREEN-WINGED TEAL.

ANAS CRECCA, LINN.

PLATE CCXXVIII. MALE AND FEMALE.

NOTHING can be more pleasing to an American sportsman, than the arrival of this beautiful little duck in our Southern or Western States. There, in the month of September, just as the sun sinks beneath the horizon, you may find him standing on some mote or embankment of a rice-field in Carolina, or a neck of land between two large ponds in Kentucky, his gun loaded with number four, and his dog lying at his feet. He sees advancing from afar, at a brisk rate, a small dark cloud, which he has some minutes ago marked and pronounced to be a flock of Green-winged Teals. Now he squats on his haunches; his dog lies close; and ere another minute has elapsed, right over his head, but too high to be shot at, pass the winged travellers. Some of them remember the place well, for there they have reposed and fed before. Now they wheel, dash irregularly through the air, sweep in a close body over the watery fields, and in their course pass near the fatal spot where the gunner anxiously awaits. Hark, two shots in rapid succession! The troop is in disorder, and the dog dashes through the water. Here and there lies a Teal, with its legs quivering; there, one is whirling round in the agonies of death; some, which are only winged, quickly and in silence make their way towards a hiding-place, while one, with a single pellet in his head, rises perpendicularly with uncertain beats, and falls with a splash on the water. The gunner has charged his tubes, his faithful follower has brought up all the game, and the frightened Teals have dressed their ranks, and flying now high, now low, seem curious to see the place where their companions have been left. Again they fly over the dangerous spot, and again receive the double shower of shot. Were it not that darkness has now set in, the carnage might continue until the sportsman should no longer consider the thinned flock worthy of his notice. In this manner, at the first arrival of the Green-winged Teal in the Western Country, I have seen upwards of six dozen shot by a single gunner in the course of one day.

I have often thought that water-birds, ducks for example, like land-birds which migrate in flocks, are very apt to pass over the place where

others of the same kind had been before. Pigeons, Starlings, Robins, and other land-birds are often observed to do so; while Curlews, Cormorants, Plovers, Ducks and Geese, are similar in this respect. The first object in view with such species is to remove from one part of the country to another, as every one knows; and as to reach a place of safety abundantly supplied with food, is the next object, you may perhaps join me in concluding, that, to the spot or district in which birds have once been and spent a season, they are ever afterwards inclined to return. Well, the Green-wings are known to follow each other in flocks, sometimes consisting of a few families, sometimes of many hundred individuals, particularly in autumn, when old and young leave the north to avoid the rigours of its dreary winter. In spring, again, many species both of land and water birds perform their migrations, either singly or in smaller groups, the males departing before the females, and in some cases the young keeping by themselves, an arrangement perhaps intended for the greater dispersion of the species.

In Louisiana, the Green-winged Teal is named *Sarcelle d'hiver*, while the Blue-winged species bears the name of *Sarcelle d'été*, although the latter remains only some weeks in that country after the departure of the former. Its general name, however, is the "Green-wing;" and a poor name in my opinion it is, for the bird has not more green on its wings than several other species have. Indeed, very many birds are strangely named, not less in *pure* Latin, than in English, French, and Dutch; and very many are every year receiving names still stranger than those they bore. For my part, I am at present a kind of conservative, and adhere to the old system until I see the mud raised up by the waders subside, when I may probe my way with more chance of success.

The Green-winged Teal is a fresh-water bird, being rarely met with in marine bays, creeks, or lagoons, where, however, it may sometimes spend a few days. It is accordingly enabled to feed with its body half-immersed, in the manner of the Mallard and several other species, for which purpose it is furnished with a comparatively long neck. Its food consists principally of the seeds of grasses, which are collected either when floating or when still adhering to their stalks, small acorns, fallen grapes or berries, as well as aquatic insects, worms, and small snails. I have never found water lizards, leeches, fishes, or even tadpoles in their gizzards. The food of this bird being thus more select than that of most other Ducks, its flesh is delicious, probably the best of any of its tribe;

and I would readily agree with any epicure in saying, that when it has fed on wild oats at Green Bay, or on soaked rice in the fields of Georgia and the Carolinas, for a few weeks after its arrival in those countries, it is much superior to the Canvass-back in tenderness, juiciness, and flavour. Indeed, the Green-wing is as much superior to the Canvass-back, as the European Quail is to the Capercaille, or the Sora of the Delaware to the Scolopaceous Curlew of the Florida Ever Glades.

On land, the Green-wing moves with more ease and grace than any other species with which I am acquainted, excepting our beautiful Wood Duck. It can run at a good rate, without entangling its webbed feet, as many others do; and in this, too, there is a marked difference between fresh-water and salt-water Ducks, as one may very readily perceive. On the water, also, it moves with great ease, at times with considerable rapidity, and when not severely wounded, is able to dive in a very creditable manner. On wing it has no rivals among Ducks. Our two smaller Mergansers, however, are swifter, although they exhibit none of the graceful movements every now and then shewn by the Green-wings, when coursing in the air over and around a pond, a river, or a large wet savannah. They rise from the water at a single spring, and so swiftly too, that none but an expert marksman need attempt to shoot them, if when starting they are many yards distant. While feeding, they proceed in a close body along the shores, or wherever the water is so shallow that they can reach the bottom with ease. In savannahs or watery fields intersected by dry ridges, they remove from one pool to another on foot, unless the distance is considerable; and in effecting the transit, they run so huddled together, as to enable a gunner to make great havock among them. When the cravings of hunger are satisfied, they retire to some clean part of the shore, or a sandbar, where they rest in perfect harmony, each individual composing its dress, and afterwards, with wings slightly drooping, placing its breast to the sun. There they remain for an hour or more at a time, some sound asleep, some dosing, but rarely without a trusty sentinel watching over their safety. In this manner they spend the winter months in the Southern and Western Countries. There, indeed, they are far more abundant than in our eastern districts, just because the climate is milder, the human population more dispersed, and the damp fields, meadows, and savannahs more abundant.

The migrations of this species are performed more over the land than along the borders of the sea; and it is probable that its principal breed.

ing-places are in the interior of the fur countries ; as it has been met there by Sir EDWARD PARRY, Sir JAMES ROSS, Dr RICHARDSON, and other intrepid travellers. Some, however, remain on our great lakes, and I have seen individuals breeding on the banks of the Wabash, in Illinois, where I found a female with young, all of which I obtained. It was not far above Vincennes, and in the month of July. On Lakes Erie and Michigan, nests containing eggs have also been found ; but these may have been cases in which the birds were unable to proceed farther north, on account of wounds or other circumstances, or because of the early period at which they might have paired before the general departure of the flocks, a cause of detention more common in migratory birds than people seem to be aware of. These opportunities, few as they were, have enabled me to see the kinds of places in which the nests were found, the structure of the nest, the number, size, and colour of the eggs ; so that I have in so far been qualified to draw a comparison between our Green-winged Teal and that of Europe.

The Green-wings leave the neighbourhood of New Orleans in the end of February ; but in the Carolinas they remain until late in March, at which time also they depart from all the places between the Atlantic and the States of Kentucky, Indiana, &c. Farther eastward I have seen this species as late as the 9th of May, when I shot a few not far from Philadelphia. As you advance farther along our coast, you find it more rare ; and scarcely any are met with near the shores of the British provinces. In Newfoundland and Labrador, it is never seen. Its migrations southward, I am satisfied, extend beyond the United States ; but their extreme limits are unknown to me. I have seldom seen it associate with other species, although I have frequently observed individuals on a pond or river not far from other Ducks. It is more shy than the Blue-winged Teal, but less so than most of our other fresh-Water Ducks. Its voice is seldom heard during winter, except when a flock is passing over an other that has alighted, when a few of the males call to the voyagers, as if to invite them to join them. Before they depart, however, they become noisy. Combats take place among the males ; the females are seen coquetting around them, and most of the birds are paired before they leave us.

In the few instances in which I found the nest of this bird, and they were only three, it was not placed nearer the water than five or six yards, and I should not have discovered it had I not first seen the birds swim-

ming or washing themselves near the spot. By watching them carefully I discovered their landing places, and on going up found a path formed, in a direct line among the rushes. In two cases I came so near the nest, as almost to touch the sitting bird as it rose affrighted. While it flew round me, and then alighted on the water, I viewed the nest, with perhaps more interest than I have felt on most occasions of a like nature. On a scanty bed of the bird's own down and feathers, supported by another of grasses, intermixed with mud and stalks of the plants around, raised to the height of four or five inches, I found seven eggs in one, nine in another, and only five in a third. They were all found in the month of July, and not far from Green Bay. The average measurement of the eggs was an inch and three quarters by an inch and three-eighths. They were much rounded, of a dull yellowish colour, indistinctly marked with a deeper tint, as if soiled. In one of the nests only the eggs were fresh. I took two of them, which I afterwards ate. Having planted a stick as a mark of recognition, I visited the nest three days in succession, but found that the bird had abandoned it; while those of the other two nests, which were not more than about a hundred yards distant, and whose eggs I had handled quite as much, although I took none away, continued to sit. No male birds were to be seen during my stay in that neighbourhood. I concluded that although the eggs may be touched or even handled and lifted from the nest, yet if they were all replaced, the bird did not take umbrage; but that should any of them be missed, some strong feeling urged her to abandon the rest. Again I thought that as incubation had just commenced with this bird, she cared less about her eggs than the other two whose eggs contained chicks.

Having met with the young of this species only once, at a time when I was less aware of the necessity of noting observations in writing, I am unwilling to speak of their colours from recollection. All I can say is that I had great trouble in catching four of them, so cunningly did they hide in the grass, and so expert were they at diving.

ANAS CRECCA, *Linn. Syst. Nat.* vol. i. p. 204.—*Lath. Ind. Ornith.* vol. ii. p. 872.—

Ch. Bonaparte, *Synops. of Birds of the United States*, p. 386.

ANAS CRECCA, var. *AMERICAN TEAL*, *Swains. and Richards*, *Fauna Bor. Amer.* part ii. p. 443.

GREEN-WINGED TEAL, *ANAS CRECCA*, *Wils. Amer. Ornith.* vol. viii. p. 101. pl. 70. fig. 4.

AMERICAN TEAL, *Nuttall*, *Manual*, vol. ii. p. 400.

Adult Male. Plate CCXXVIII. Fig. 1.

• Bill almost as long as the head, deeper than broad at the base, depressed towards the end, its breadth nearly equal in its whole length, being however a little enlarged towards the rounded tip. Upper mandible with the dorsal line at first sloping, then concave, towards the ends nearly straight, the ridge broad and flat at the base, then broadly convex, the sides convex, the edges soft, with about fifty-five lamellæ. Nostrils subbasal, near the ridge, rather small, elliptical, pervious. Lower mandible flattish, with the angle very long and rather narrow, the dorsal line very short, straight, the sides perpendicular with about 130 lamellæ.

Head of moderate size, compressed. Neck of moderate length, rather slender. Body full, depressed. Wings rather small. Feet short, placed rather far back; tarsus short, compressed, at its lower part anteriorly with two series of scutella, the rest covered with reticulated angular scales. Toes scutellate above; first toe very small, free, with a narrow membrane beneath; third longest; fourth a little shorter; the anterior toes united by reticulated webs, of which the outer is deeply sinuate; claws small, curved, compressed, acute, the hind one smaller and more curved, that of the third toe largest, and with an inner sharp edge.

Plumage dense, soft, blended. Feathers of the middle of the head, and upper part of hind neck, very narrow, elongated, with soft filamentous disunited bands, of the rest of the head and upper part of neck very short, of the back and lower parts in general broad and rounded. Wings of moderate length, narrow, acute; primaries strong, curved, tapering, second longest, first scarcely shorter; secondaries broad, rather pointed, the inner elongated and tapering, as are the scapulars. Tail short, rounded and acuminate, of sixteen acuminate feathers.

Bill black. Iris brown. Feet light bluish-grey. Head and upper part of the neck chestnut-brown; a broad band, narrowing backwards, from the eye down the back of the neck, deep shining green, edged with

black below, under which is a white line, which before the eye meets another that curves forward and downward to the angle of the mouth; chin brownish-black, as are the feathers at the base of the upper mandible. Upper parts and flanks beautifully undulated, with narrow brownish-black and white bars; anterior to the wings is a short broad transverse band of white. Wings brownish-grey; the speculum in its lower half velvet-black, the upper bright green, changing to purple, and edged above with black, behind margined with white, before with reddish-white. Tail brownish-grey, the feathers margined with paler; the upper coverts brownish-black, edged with light yellowish-grey. Lower part of neck anteriorly barred as behind; breast yellowish-white, spotted with black, its lower part white; abdomen white, faintly barred with grey; a patch of black under the tail, the lateral tail-coverts cream coloured, the larger black, with broad white margins and tips.

Length to end of tail $14\frac{3}{4}$ inches, to end of claws $15\frac{1}{4}$; extent of wings 24; wing from flexure $7\frac{1}{2}$; tail $8\frac{1}{4}$; bill along the back $1\frac{7}{8}$, along the edge of lower mandible $1\frac{9}{16}$; tarsus $1\frac{1}{2}$; middle toe $1\frac{5}{8}$, its claw $\frac{5}{16}$. Weight 10 oz.

Adult Female. Plate CCXXVIII. Fig. 2.

The Female wants the elongated crest, and differs greatly in colouring. The head and neck are streaked with dark brown and light red, the fore neck whitish; the upper parts mottled with dark brown, the anterior feathers barred, the posterior margined with yellowish-white. The wings are nearly as in the male, but the green of the speculum is less extensive; the lower part of the fore neck is tinged with yellowish-red, and mottled with dark brown, as are the sides; the rest of the lower parts white.

Length to end of tail $13\frac{3}{4}$; to end of claws $1\frac{1}{4}$; extent of wings $22\frac{1}{2}$. Weight 10 oz.

The differences between the American and European specimens are so small that I can find no good reason for considering the birds of the two continents distinct. The American Teal has a white band before the wing, which the European bird has not, while the latter has the greater part of the outer webs of most of the scapulars white, there being none of that colour on those of our bird. The proportions and size are similar; and if the two birds are really distinct species, I do not know upon what circumstances specific distinctions are to be founded.

THE SCAUP DUCK.

FULIGULA MARILA, STEPH.

PLATE CCXXIX. MALE AND FEMALE.

THE opinion, derived from WILSON'S account of the Scaup Duck, that it is met with only along our sea coasts, in bays, or in the mouths of rivers, as far as the tide extends, is incorrect. Had WILSON resided in the Western Country, or seen our large lakes and broad rivers during late autumn, winter, or early spring, he would have had ample opportunities of observing thousands of this species, on the Ohio, the Missouri, and the Mississippi, from Pittsburg to New Orleans. I have shot a good number of Scaup Ducks on all these rivers, where I have observed them to arrive early in October, and whence they depart between the 1st of March and the middle of April. I have not, however, seen any in small creeks, lagoons, or ponds. When they arrive on the western waters, they are seen in flocks of from fifteen to twenty individuals; but in a few weeks these flocks are joined by others, for which reason the species is named in Kentucky the "Flocking Fowl." They are, however, seldom seen close together while on the water, and they rarely associate with other birds.

The Scaup Duck seems to float less lightly than it really does, its body being comparatively flat. It moves fast, frequently sipping the water, as if to ascertain whether its favourite food be in it. Then turning its head and glancing on either side to assure itself of security, down it dives with all the agility of a Merganser, and remains a considerable time below. On emerging, it shakes its head, raises the hind part of its body, opens its short and rather curved wings, after a few flaps replaces them, and again dives in search of food. Should any person appear when it emerges, it swims off to a considerable distance, watches every movement of the intruder, and finally either returns to its former place, or flies away.

These birds are fond of large eddies below projecting points of land, but frequently dive in search of food at a considerable distance from them. When in eddies they may be approached and shot with less difficulty than when in any other situation. If wounded only, they are not

easily secured ; in fact, you need not go after them, for by diving, fluttering along the surface, and cutting backward and forward, they generally elude pursuit. Between Louisville and Shippingport, on the Kentucky side of the Ohio, the shores are from ten to fifteen feet high, and rather abrupt when the waters are at their ordinary level. The Scaup Ducks are fond of diving for food along this place, and there, by coming directly upon them unseen, till you are almost over them, you may have the very best opportunities of procuring them. They are not worth shooting, however, unless for sport or examination, for their flesh is generally tough and rather fishy in flavour. Indeed I know none, excepting what is called an *Epicure*, who could relish a Scaup Duck.

They appear to experience some difficulty in getting on wing, and assist themselves on all occasions, either by meeting the current or fronting the wind, while they also use their broad feet as helps. When danger is near, they frequently, however, prefer diving, which they find as effectual a means of security as flying. As they usually feed at some distance from each other, it is amusing to see them go off, as they emerge from the water in succession, and to watch them when they collect again, and when, after flying for a long time in circles, now high then low over the water, they all realight. These habits, and the toughness of their sinewy bodies, render it rather difficult to shoot them. Although flat-billed, they dive to a considerable depth, and when they have reached the bottom, no doubt furrow the mud, in the manner of the Shoveller (*Anas clypeata*), although the latter performs this action while floating on the surface, with its head and neck alone submersed, as it swims over the shallows.

The food of the Scaup Duck I have found to consist of small fry, crayfishes, and a mixture of such grasses as here and there grow along the beds of our rivers. I never found any portions of testaceous mollusca in the gizzards of those obtained on our western waters, although even there they might meet with abundance of these animals.

When these birds are travelling, their flight is steady, rather laborious, but greatly protracted. The whistling of their wings is heard at a considerable distance when they are passing over head. At this time they usually move in a broad front, sometimes in a continuous line. When disturbed, they fly straight forward for a while, with less velocity than when travelling, and, if within proper distance, are easily shot. At times their notes are shrill, but at others hoarse and guttural. They are

however rarely heard during the day, and indeed, like many other species, these birds are partly nocturnal.

At the approach of spring the Drakes pay their addresses to the females, before they set out on their journey. At that period the males become more active and lively, bowing their heads, opening their broad bills, and uttering a kind of quack, which to the listener seems produced by wind in their stomach, but notwithstanding appears to delight their chosen females.

The Scaup Duck varies materially as to size at different ages. Some wounded individuals which I kept, and which were birds of the first year, were much larger and heavier at the end of a year; and I agree with my learned friend NUTTALL, that specimens may be procured measuring from sixteen and a half to eighteen, nineteen, or twenty inches in length.

On the Atlantic coast I have met with this species from the Gulf of Mexico to the Bay of Fundy, and my friend THOMAS MACCULLOCH has told me that they are not unfrequent at Pictou in Nova Scotia. Farther north I saw none; and their breeding places are yet unknown to me.

ANAS MARILA, Linn. Syst. Nat. vol. i. p. 196—Lath. Ind. Ornith. vol. ii. p. 853.

FULIGULA MARILA, Ch. Bonaparte, Synopsis of Birds of the United States, p. 392.—

Swains. and Richards. Fauna Bor. Amer. part ii. p. 453.

SCAUP DUCK, *ANAS MARILA*, Wils. Amer. Ornith. vol. viii. p. 84. pl. 69. fig. 8.—

Nuttall, Manual, vol. ii. p. 437.

Adult Male. CCXXIX. Fig. 1.

Bill as long as the head, deeper than broad at the base, enlarged and flattened towards the end, which is rounded, the frontal angles narrow and pointed. Upper mandible with the dorsal line at first straight and declinate, then slightly concave, along the unguis curved, the ridge broad at the base, narrowed at the middle, enlarged and convex towards the end, the sides nearly erect at the base, becoming more and more declinate and convex, the edges curved upwards, with about forty lamellæ, the unguis small and oblong. Nostrils submedial, oblong, rather large, pervious, near the ridge, in an oblong groove with a soft membrane. Lower mandible flat, with the angle very long and rather narrow, the dorsal line very short and straight, the erect edges with about sixty lamellæ,—on the upper edge, however, the lamellæ are more numerous,—the unguis broadly elliptical.

Head of moderate size. Eyes small. Neck of moderate length, rather thick. Body comparatively short, compact, and depressed. Wings small. Feet very short, strong, placed rather far behind; tarsus very short, compressed, anteriorly with a series of broad scutella, externally of which is another of smaller, the rest reticulated with angular scales. Hind toe small, with a free membrane beneath; anterior toes double the length of the tarsus, united by reticulated membranes having a sinus at their free margins, the outer and inner with loose somewhat lobed marginal membranes, all obliquely scutellate above, the third and fourth about equal and longest. Claws small, that of first toe very small and curved, of middle toe largest, with an inner thin edge, of the rest very slender and pointed.

Plumage dense, soft, blended. Feathers of the head and neck short and velvety, those of the hind head a little elongated. Wings shortish, narrow, pointed; primary quills curved, strong, tapering, the first longest, the second very little shorter, the rest rapidly graduated; secondary broad and rounded, the inner elongated and tapering. Tail very short, much rounded, of fourteen feathers.

Bill light greyish-blue, the unguis blackish. Iris yellow. Feet greyish-blue, the webs and claws black. The head, the whole neck, and the fore part of the back and breast black, the head and neck glossed with purple and green, the rest tinged with brown. Hind part of the back, rump, abdomen, and upper and lower tail-coverts brownish-black. Middle of the back, scapulars, inner secondaries, anterior part of abdomen, and sides greyish-white, beautifully marked with undulating black lines. Middle of the breast white, wings light brownish-grey. Alula, primaries at the base and end, and the greater part of secondaries, brownish-black; the speculum on the latter white.

Length to end of tail $16\frac{1}{2}$ inches, to end of claws 18; extent of wings 29; wing from flexure $8\frac{1}{4}$; tail $2\frac{1}{4}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible 2; tarsus $1\frac{1}{4}$; middle toe $2\frac{2}{3}$, its claw $\frac{5}{16}$. Weight 1 lb. 6 oz.

Adult Female. Plate CCXXIX. Fig. 2.

The female agrees with the male in the characters of the plumage, and in the colours of the bare parts; but those of the former differ considerably. The head, neck, and fore part of the back and breast, are umber brown; and there is a broad patch of white along the fore part of the

forehead. The upper parts in general are brownish-black, the middle of the back and the scapulars undulated with whitish dots and bars. The primary quills are greyish in the middle, and the speculum is white, but of less extent than in the male. The greater part of the breast and abdomen is white ; the sides and parts under the tail umber brown.

Length $16\frac{1}{4}$ inches, extent of wings 28. Weight 1 lb. 6 oz.

The males, as has been said, vary greatly in size, but in adult specimens there is little difference in colouring. The birds figured in my Illustrations, and described above, were from the Mississippi ; but others seen in various parts presented no such differences as to indicate permanent varieties.

THE SANDERLING.

TRINGA ARENARIA, BONAP.

PLATE CCXXX. MALE AND FEMALE.

ALTHOUGH the Sanderling extends its rambles along our Atlantic shores, from the eastern extremities of Maine to the southernmost Keys of the Floridas, it is only an autumnal and winter visitor. It arrives in the more Eastern Districts about the 1st of August, on the sea-shores of New York and New Jersey rarely before the 10th of August, and seldom reaches the extensive sand-banks of East Florida previous to the month of November. Along the whole of this extended coast, it is more or less abundant, sometimes appearing in bands composed of a few individuals, and at times in large flocks, but generally mingling with other species of small shore-birds. Thus I have seen Turnstones and Knots mixed with the Sanderlings, but in such cases they are perhaps wanderers, which have not succeeded in meeting with companions of their own species, that associate with the birds of which I here speak.

The Sanderling obtains its food principally by probing the moist sands of the sea-shores with its bill held in an oblique position. At every step it inserts this instrument with surprising quickness, to a greater or less depth, according to the softness of the sand, sometimes introducing it a quarter of an inch, sometimes to the base. The holes thus made may be seen on the borders of beaches, when the tide is fast receding, in rows of twenty, thirty, or more; in certain spots less numerous; for it appears that when a place proves unproductive of the food for which they are searching, they very soon take to their wings and remove to another, now and then in so hurried a manner that one might suppose they had been suddenly frightened. The contents of the stomach of those which I shot while thus occupied, were slender sea-worms, about an inch in length, together with minute shell-fish and gravel. At other times, when they were seen following the receding waves, and wading up to the belly in the returning waters, I found in them small shrimps and other crustacea.

In their flight the Sanderlings do not perform so many evolutions as Sandpipers usually display. They generally alight about a hundred

yards of the place from which they started, and run for a yard or so, keeping their wings partially extended. They move on the sand with great activity, running so as to keep pace with a man walking at a moderate rate. Their flight is rapid and straighter than that of other small species, and when on wing they seldom exhibit each surface of the body alternately, as many others are wont to do.

I have thought that the migrations of this bird are carried on under night; but of this I am by no means certain, although I observed some small flocks, composed of a few dozen individuals, crossing the Gulf of St Lawrence, at a little height over the water, in the month of June. The lateness of the season induced me to hope that I might find some nests of the Sanderling on the coast of Labrador; but in this I was disappointed, although some young birds were seen at Bras d'Or, in little parties of four or five individuals. This was early in August, and they were already on their way southward.

The Sanderling affords good eating, especially the young, and the sportsman may occasionally kill six or seven at a shot, provided he fires the moment the flock has alighted, for immediately after the birds spread abroad in search of food.

The female may easily be distinguished from the male, by her superior size; but in the colouring of birds of both sexes, I have observed as much difference as in the Turnstone. Even during winter, some are more or less marked with black and brownish-red, while others, which, however, I easily ascertained to be younger birds, were of an almost uniform light grey above, each feather edged with dull white; but in all those which I have examined, whether old birds in the full spring or summer dress, in which I have shot some in May, in the Middle Districts, or young birds in autumn and during winter, I have seen no difference in the colours of the bill, legs, and toes. My plate of this species represents two birds in winter plumage, which were obtained in East Florida in the month of December. The figure of a fine male, which, being on another sheet of paper, was overlooked during my absence from London, you will find in Plate CCLXXXV. of "The Birds of America."

CHARADRIUS CALIDRIS, *Linn. Syst. Nat.* vol. i. p. 255.—*Lath. Ind. Ornith.* vol. ii. p. 741, in Winter.

CHARADRIUS RUBIDUS, *Ibid.* p. 740, in Summer.

TRINGA ARENARIA, *Ch. Bonaparte*, *Synops. of Birds of the United States*, p. 320.

CALIDRIS ARENARIA, *SANDERLING*, *Swains. and Richards. Fauna Bor. Amer.* part ii. p. 366.

RUDDY PLOVER, *CHARADRIUS RUBIDUS*, *Wils. Amer. Ornith.* vol. vii. p. 129. pl. 63. fig. 3.—Summer dress.

SANDERLING PLOVER, *Ibidem*, vol. vii. p. 63. pl. 59. fig. 4. Winter dress.—*Nuttall, Manual*, vol. ii. p. 4.

Adult Male in winter. Plate CCXXX. Fig. 1.

Bill rather longer than the head, slender, subcylindrical, straight, flexible, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line nearly straight, slightly sloping to beyond the middle, the ridge convex, towards the end flattened, at the point convex; sides sloping, edges rather blunt and soft. Nasal groove long; nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line slightly convex, the sides sloping outwards, towards the end convex.

Head of moderate size, oblong, compressed. Eyes rather large. Neck of moderate length. Body rather slender. Feet slender, of moderate length; tibia bare a considerably way up; tarsus compressed, anteriorly and posteriorly with numerous small scutella; hind toe wanting; toes of moderate length, slender; inner toe shorter than outer, middle toe considerably longer, all scutellate above and marginate, with prominent papillæ, and free; claws small, slightly curved, extremely compressed, blunt.

Plumage very soft, blended beneath, slightly distinct above. Wings long and pointed; primaries tapering, obtuse, the first longest, the second a little shorter, the rest rapidly graduated; secondaries rather short, obliquely rounded, curved inwards, the inner elongated and tapering. Tail rather short, rounded, of twelve feathers, the two middle ones considerably longer.

Bill and feet black. Iris brown. The general colour of the plumage above is ash-grey, the edges paler; the lower parts pure white. Alula and primaries brownish-black, the latter with more or less white on their outer webs or along the shaft; secondaries white, the outer with a patch

of brownish-black towards the end, the inner ash-grey ; primary coverts brownish-black, tipped with white ; secondary coverts greyish-brown, broadly tipped with white. Middle tail feathers greyish-brown, their shafts white, the rest of a paler tint on the outer webs, white on the inner, the lateral almost pure white.

Length to end of tail $7\frac{1}{2}$, to end of wings $7\frac{1}{2}$, to end of claws $8\frac{1}{4}$; extent of wings $12\frac{1}{2}$; wing from flexure $4\frac{1}{2}$; tail $2\frac{1}{2}$; bill along the back 1 ; along the edge of lower mandible $1\frac{1}{2}$; tarsus 1 ; middle toe $\frac{2}{3}$, its claw $\frac{1}{2}$. Weight $1\frac{3}{4}$ oz.

Adult Female in Winter. Plate CCXXX. Fig. 2.

The Female is precisely similar to the Male.

In its summer plumage, this species differs in the following particulars. The bill, feet, and iris, are as described above, and the lower parts are also pure white, excepting the fore part and sides of the neck, which, as well as the upper parts of the head, and the hind neck, are pale yellowish-red, spotted with brownish-black. The back is similarly marked, the spots larger, and on the scapulars disposed in bars ; the tips of most of the feathers greyish-white, the wings and tail are as in winter.

A RACCOON HUNT IN KENTUCKY.

THE Raccoon, which is a cunning and crafty animal, is found in all our woods, so that its name is familiar to every child in the Union. The propensity which it evinces to capture all kinds of birds accessible to it in its nightly prowlings, for the purpose of feasting on their flesh, induces me to endeavour to afford you some idea of the pleasure which our western hunters feel in procuring it. With your leave, then, Reader, I will take you to a "Coon Hunt."

A few hours ago the sun went down far beyond the "far west." The woodland choristers have disappeared, the matron has cradled her babe, and betaken herself to the spinning-wheel; the woodsman, his sons, and "the stranger" are chatting before a blazing fire, making wise reflections on past events, and anticipating those that are to come. Autumn, sallow and sad, prepares to bow her head to the keen blast of approaching winter; the corn, though still on its stalk, has lost its blades; the wood pile is as large as the woodsman's cabin; the nights have become chill, and each new morn has effected a gradual change in the dews, which now crust the withered herbage with a coat of glittering white. The sky is still cloudless; a thousand twinkling stars reflect their light from the tranquil waters; all is silent and calm in the forest, save the nightly prowlers that roam in its recesses. In the cheerful cabin all is happiness; its inmates generously strive to contribute to the comfort of the stranger who has chanced to visit them; and, as racoons are abundant in the neighbourhood, they propose a hunt. The offer is gladly accepted. The industrious woman leaves her wheel, for she has listened to her husband's talk; now she approaches the fire, takes up the board shovel, stirs the embers, produces a basket filled with sweet potatoes, arranges its contents side by side in front of the hearth, and covers them with hot ashes and glowing coals. All this she does, because she "guesses" that hungry stomachs will be calling for food when the sport is over. Ah! Reader, what "homely joys" there are in such scenes, and how you would enjoy them! The rich may produce a better, or a more sumptuous meal; but his feelings can never be like those of the poor woodsman. Poor I ought not to call him, for nature and industry bountifully supply all his wants;

the woods and rivers produce his chief dainties, and his toils are his pleasures.

Now mark him ! the bold Kentuckian is on his feet ; his sons and the stranger prepare for the march. Horns and rifles are in requisition. The goodman opens the wooden-hinged door, and sends forth a blast loud enough to scare a wolf. The racoons scamper away from the corn-fields, break through the fences, and hie to the woods. The hunter has taken an axe from the wood-pile, and returning, assures us that the night is clear, and that we shall have rare sport. He blows through his rifle, to ascertain that it is clear, examines his flint, and thrusts a feather into the touch-hole. To a leathern bag swung at his side is attached a powder-horn ; his sheathed knife is there also ; below hangs a narrow strip of home-spun linen. He takes from his bag a bullet, pulls with his teeth the wooden stopper from his powder-horn, lays the ball on one hand, and with the other pours the powder upon it until it is just overtopped. Raising the horn to his mouth, he again closes it with the stopper, and restores it to its place. He introduces the powder into the tube ; springs the box of his gun, greases the "patch" over with some melted tallow, or damps it ; then places it on the honeycombed muzzle of his piece. The bullet is placed on the patch over the bore, and pressed with the handle of the knife, which now trims the edges of the linen. The elastic hickory rod, held with both hands, smoothly pushes the ball to its bed : once, twice, thrice has it rebounded. The rifle leaps as it were into the hunter's arms, the feather is drawn from the touch-hole, the powder fills the pan, which is closed. "Now I'm ready," cries the woodsman. His companions say the same. Hardly more than a minute has elapsed. I wish, Reader, you had seen this fine fellow—but hark ! the dogs are barking.

All is now bustle within and without : a servant lights a torch, and off we march to the woods. "Don't mind the boys, my dear sir," says the woodsman, "follow me close, for the ground is covered with logs, and the grape vines hang everywhere across." "Toby, hold up the light, man, or we'll never see the gullies." "Trail your gun, sir, as General CLARK used to say,—not so, but this way—that's it ; now then, no danger you see ; no fear of snakes, poor things ! They are stiff enough, I'll be bound. The dogs have treed one. Toby, you old fool, why don't you turn to the right—not so much there—go a-head, and give us light—What's that ?—Who's there ?—Ah, you young rascals ! you've played

us a trick, have you. It's all well enough, but now, just keep behind, or I'll"—and in fact, the boys, with eyes good enough to see in the dark, although not quite so well as an Owl's, had cut directly across the dogs, which had surprised a racoon on the ground and bayed it, until the lads knocked it on the head. "Seek him, boys," cries the hunter.—The dogs, putting their noses to the ground, pushed off at a good rate. "Master, they're making for the creek," says old Toby. On towards it therefore we push. What woods, to be sure ! No gentleman's park this, I assure you, Reader. We are now in a low flat ; the soil thinly covers the hard clay ; nothing but beech trees hereabouts, unless now and then a maple. Hang the limbs ! say I—hang the supple-jacks too—here I am, fast by the neck—cut it with your knife. My knee has had a tremendous rub against a log—now, my foot is jammed between two roots—and here I stick. "Toby, come back—don't you know the stranger is not up to the woods. Halloo, Toby, Toby !" There I stood perfectly shackled, the hunter laughing heartily, and the lads glad of an opportunity of slipping off. Toby arrived, and held the torch near the ground, on which the hunter cutting one of the roots with his hatchet, set me free. "Are you hurt, Sir?"—no, not in the least. Off we start again. The boys had got up with the dogs, which were baying a Racoon in a small puddle. We soon joined them with the light. "Now, stranger ! watch and see !" The Racoon was all but swimming, and yet had hold of the bottom of the pool with his feet. The glare of the lighted torch was doubtless distressing to him ; his coat was ruffled, and his rounded tail seemed thrice its ordinary size, his eyes shone like emeralds ; with foaming jaws he watched the dogs, ready to seize each by the snout if it came within reach. They kept him busy for several minutes ; the water became thick with mud ; his coat now hung dripping, and his dragged tail lay floating on the surface. His guttural growlings, in place of intimidating his assailants, excited them the more ; and they very unceremoniously closed upon him, curs as they were, and without the breeding of gentle dogs ! One seized him by the rump and tugged, but was soon forced to let go ; another stuck to his side, but soon taking a better directed bite of his muzzle than another dog had just done of his tail, coon made him yelp ; and pitiful were the cries of luckless Tyke. The Racoon would not let go, but in the mean time the other dogs seized him fast, and worried him to death, yet to the last he held by his antagonist's snout. Knocked on the head by an axe, he lay gasping his last breath, and the heaving

of his chest was painful to see. The hunters stood gazing at him in the pool, while all around was by the flare of the torch rendered trebly dark and dismal. It was a good scene for a skilful painter.

We had now two coons, whose furs were worth two quarters of a dollar, and whose bodies, which I must not forget, as Toby informed us, would produce two more. "What now," I asked—"What now," quoth the father, "why go after more to be sure." So we did, the dogs ahead, and I far behind. In a short time the curs treed another, and when we came up, we found them seated on their haunches, looking upwards, and barking. The hunters now employed their axes, and sent the chips about at such a rate that one of them coming in contact with my cheek marked it so, that a week after several of my friends asked me where, in the name of wonder, I had got that black eye. At length the tree began to crack, and slowly leaning to one side, the heavy mass swung rustling through the air, and fell to the earth with a crash. It was not one coon that was surprised here, but three—aye three of them, one of which, more crafty than the rest, leaped fairly from the main top while the tree was staggering. The other two stuck to the hollow of a branch, from which they were soon driven by one of the dogs. Tyke and Lion having nosed the cunning old one, scampered after him, not mouthing like the well-trained hounds of our southern fox hunters, but yelling like furies. The hunter's sons attacked those on the tree, while the woodsman and I, preceded by Toby, made after the other; and busy enough we all were. Our animal was of extraordinary size, and after some parley, a rifle ball was sent through his brain. He reeled once only,—next moment he lay dead. The rest were dispatched by the axe and the club, for a shot in those days was too valuable to be spent when it could be saved. It could procure a deer, and therefore was worth more than a coon's skin.

Now, look at the moon! how full and clear has she risen on the Raccoon hunters! Now is the time for sport! Onward we go, one following the long shadow of his precursor. The twigs are no impediment, and we move at a brisker pace, as we return to the hills. What a hue and cry!—here are the dogs. Overhead and all around, on the forks of each tree, the hunter's keen eye searches for something round, which is likely to prove a coiled up Raccoon. There's one! Between me and the moon I spied the cunning thing crouched in silence. After taking aim, I raise my barrel ever so little, the trigger is pressed; down falls the Raccoon to the ground. Another and another are on the same tree. Off

goes a bullet, then a second ; and we secure the prey. " Let us go home, stranger," says the woodsman ; and contented with our sport, towards his cabin we trudge. On arriving there, we find a cheerful fire. Toby stays without, prepares the game, stretches the skins on a frame of cane, and washes the bodies. The table is already set ; the cake and the potatoes are all well done ; four bowls of butter-milk are ranged in order ; and now the hunters fall to.

The Racoon is a cunning animal, and makes a pleasant pet. Monkey-like, it is quite dexterous in the use of its fore feet, and it will amble after its master, in the manner of a bear, and even follow him into the street. It is fond of eggs, but prefers them raw, and it matters not whether it be morning, noon, or night, when it finds a dozen in the pheasant's nest, or one placed in your pocket to please him. He knows the habits of mussels better than most conchologists. Being an expert climber, he ascends to the hole of the woodpecker, and devours the young birds. He knows, too, how to watch the soft-shelled turtle's crawl, and, better still, how to dig up her eggs. Now by the edge of the pond, grimalkin-like, he lies seemingly asleep, until the summer-duck comes within reach. No Negro knows better when the corn is juicy and pleasant to eat ; and although squirrels and woodpeckers know this too, the Racoon is found in the corn-field longer in the season than any of them, the havock he commits there amounting to a tithe. His fur is good in winter, and many think his flesh good also ; but for my part I prefer a live Racoon to a dead one, and should find more pleasure in hunting one than in eating him.

THE LONG-BILLED CURLEW.

NUMENIUS LONGIROSTRIS, WILS.

PLATE CCXXXI. MALE AND FEMALE.

THE Long-billed Curlew is a constant resident in the southern districts of the United States, whereas the other species are only autumnal and winter visitors. It is well known by the inhabitants of Charleston that it breeds on the islands on the coast of South Carolina; and my friend the Reverend JOHN BACHMAN has been at their breeding grounds. That some individuals go far north to breed, is possible enough, but we have no authentic account of such an occurrence, although many *suppositions* have been recorded. All that I have to say on this subject is, that the bird in question is quite unknown in the Magdeleine Islands, where, notwithstanding the assertions of the fishermen, they acknowledged that they had mistaken Godwits for Curlews. In Newfoundland, I met with a well-informed English gentleman, who had resided in that island upwards of twenty years, and described the Common Curlew of Europe with accuracy, but who assured me that he had observed only two species of Curlew there, one about the size of the Whimbrel—the *Numenius hudsonicus*, the other smaller—the *N. borealis*, and that only in August and the beginning of September, when they spend a few days in that country, feed on berries, and then retire southward. Mr JONES of Labrador, and his brother-in-law, who is a Scotch gentleman, a scholar, and a sportsman, gave me the same account. None of my party observed an individual of the species in the course of our three months' stay in the country, although we saw great numbers of the true Esquimaux Curlew, *N. borealis*. Yet I would not have you to suppose that I do not give credit to the reports of some travellers, who have said that the Long-billed Curlew is found in the fur countries during summer. This may be true enough; but none of the great northern travellers, such as RICHARDSON, ROSS, PARRY, or FRANKLIN, have asserted this as a fact. Therefore if the bird of which I speak has been seen far north, it was in all probability a few stragglers that had perhaps been enticed to follow some other species. I am well aware of the propensity it has to ramble, as I have shot some in Missouri, Indiana, Kentucky, Arkansas, and Mississippi;

but the birds thus obtained were rare in those districts, where the species only appears at remote periods ; and in every instance of the kind I have found the individuals much less shy than usual, and apparently more perplexed than frightened by the sight of man.

Until my learned friend, Prince CHARLES BONAPARTE, corrected the errors which had been made respecting the Curlews of North America, hardly one of these birds was known from another by any naturalist, American or European. To WILSON, however, is due the merit of having first published an account of the Long-billed Curlew as a species distinct from the Common Curlew of Europe.

This bird is the largest of the genus found in North America. The great length of its bill is of itself sufficient to distinguish it from every other. The bill, however, in all the species, differs greatly, according to the age of the individual, and in the present Curlew I have seen it in some birds nearly three inches shorter than in others, although all were full grown. In many of its habits, the Long-billed Curlew is closely allied to the smaller species of Ibis ; its flight and manner of feeding are similar, and it has the same number of eggs. Unlike the Ibis, however, which always breeds on trees, and forms a large nest, the Curlew breeds on the ground, forming a scanty receptacle for its eggs ; yet, according to my friend BACHMAN, the latter, like the former, places its nests " so close together, that it is almost impossible for a man to walk between them, without injuring the eggs."

The Long-billed Curlew spends the day in the sea-marshes, from which it returns at the approach of night, to the sandy beaches of the sea-shores, where it rests until dawn. As the sun sinks beneath the horizon, the Curlews rise from their feeding-grounds in small parties, seldom exceeding fifteen or twenty, and more usually composed of only five or six individuals. The flocks enlarge, however, as they proceed, and in the course of an hour or so the number of birds that collect in the place selected for their nightly retreat, sometimes amounts to several thousands. As it was my good fortune to witness their departures and arrivals, in the company of my friend BACHMAN, I will here describe them.

Accompanied by several friends, I left Charleston one beautiful morning, the 10th of November 1831, with a view to visit Cole's Island, about twenty miles distant. Our crew was good, and although our pilot knew but little of the cuttings in and out of the numerous inlets and channels in our way, we reached the island about noon. After shooting various birds,

examining the island, and depositing our provisions in a small summer habitation then untenanted, we separated; some of the servants went off to fish, others to gather oysters, and the gunners placed themselves in readiness for the arrival of the Curlews. The sun at length sunk beneath the water-line that here formed the horizon; and we saw the birds making their first appearance. They were in small parties of two, three, or five, and by no means shy. These seemed to be the birds which we had observed near the salt-marshes, as we were on our way. As the twilight became darker the number of Curlews increased, and the flocks approached in quicker succession, until they appeared to form a continuous procession, moving not in lines, one after another, but in an extended mass, and with considerable regularity, at a height of not more than thirty yards, the individuals being a few feet apart. Not a single note or cry was heard as they advanced. They moved for ten or more yards with regular flappings, and then sailed for a few seconds, as is invariably the mode of flight of this species, their long bills and legs stretched out to their full extent. They flew directly towards their place of rest, called the "Bird Banks," and were seen to alight without performing any of the evolutions which they exhibit when at their feeding-places, for they had not been disturbed that season. But when we followed them to the Bird Banks, which are sandy islands of small extent, the moment they saw us land the congregated flocks, probably amounting to several thousand individuals all standing close together, rose at once, performed a few evolutions in perfect silence, and re-alighted as if with one accord on the extreme margins of the sand-bank close to tremendous breakers. It was now dark, and we left the place, although some flocks were still arriving. The next morning we returned a little before day; but again as we landed, they all rose a few yards in the air, separated into numerous parties, and dispersing in various directions, flew off towards their feeding-grounds, keeping low over the waters, until they reached the shores, when they ascended to the height of about a hundred yards, and soon disappeared.

Now, Reader, allow me to say a few words respecting our lodgings. Fish, fowl, and oysters had been procured in abundance; and besides these delicacies, we had taken with us from Charleston some steaks of beef, and a sufficiency of good beverage. But we had no cook, save your humble servant. A blazing fire warmed and lighted our only apartment. The oysters and fish were thrown on the hot embers; the steaks we stuck

on sticks in front of them ; and ere long every one felt perfectly contented. It is true we had forgotten to bring salt with us ; but I soon proved to my merry companions that hunters can find a good substitute in their powder-flasks. Our salt on this occasion was gunpowder, as it has been with me many a time ; and to our keen appetites, the steaks thus salted were quite as savoury as any of us ever found the best cooked at home. Our fingers and mouths, no doubt, bore marks of the "villanous salt-petre," or rather of the charcoal with which it was mixed, for plates or forks we had none ; but this only increased our mirth. Supper over, we spread out our blankets on the log floor, extended ourselves on them with our feet towards the fire, and our arms under our heads for pillows. I need not tell you how soundly we slept.

The Long-billed Curlews are in general easily shot, but take a good charge. So long as life remains in them, they skulk off among the thickest plants, remaining perfectly silent. Should they fall on the water, they swim towards the shore. The birds that may have been in company with a wounded one fly off uttering a few loud whistling notes. In this respect, the species differs from all the others, which commonly remain and fly about you. When on land, they are extremely wary ; and unless the plants are high, and you can conceal yourself from them, it is very difficult to get near enough. Some one of the flock, acting as sentinel, raises his wings, as if about to fly, and sounds a note of alarm, on which they all raise their wings, close them again, give over feeding, and watch all your motions. At times a single step made by you beyond a certain distance is quite enough to raise them, and the moment it takes place, they all scream and fly off. You need not follow the flock. The best mode of shooting them is to watch their course for several evenings in succession ; for after having chosen a resting place, they are sure to return to it by the same route, until greatly annoyed.

The food of the Long-billed Curlews consists principally of the small crabs called fiddlers, which they seize by running after them, or by pulling them out of their burrows. They probe the wet sand to the full length of their bill, in quest of sea-worms and other animals. They are also fond of small salt-water shell-fish, insects, and worms of any kind ; but I have never seen them searching for berries on elevated lands, as the Esquimaux Curlews are wont to do. Their flesh is by no means so delicate as that of the species just mentioned, for it has usually a fishy taste, and is rarely tender, although many persons consider it good. They

are sold at all seasons in the markets of Charleston, at about twenty-five cents the pair.

Rambling birds of this species are sometimes seen as far as the neighbourhood of Boston; for my learned friend THOMAS NUTTALL says in his Manual, that "they get so remarkably fat, at times, as to burst the skin in falling to the ground, and are then superior in flavour to almost any other game bird of the season. In the market of Boston, they are seen as early as the 8th of August." I found them rather rare in East Florida in winter and spring. They were there seen either on large savannahs, or along the sea shore, mixed with marbled Godwits, Tell-tales, and other species.

NUMENIUS LONGIROSTRIS, *Ch. Bonaparte*, Synops. of Birds of the United States, p. 314.—*Richards and Swains*. Fauna Bor. Amer. part ii. p. 376.

LONG-BILLED CURLEW, *NUMENIUS LONGIROSTRIS*, *Wils.* Amer. Ornith. vol. viii. p. 23. pl. 64. fig. 1. adult.—*Nuttall*, Manual, vol. ii. p. 94.

Adult Male. Plate CCXXXI. Fig. 1.

Bill excessively elongated, being more than four times the length of head, very slender, subcylindrical, slightly compressed, nearly straight to the middle, beyond which it is slightly curved. Upper mandible with the ridge broad and flat at the base, broad and rounded in the rest of its extent, a deep groove running from the nostrils to near the tip, which is decurved, enlarged so as to form an oblong obtuse knob, projecting beyond the point of the lower mandible, the edges rounded, the inner surface with a deep narrow groove. Nostrils basal, lateral, longitudinal, linear, pervious. Lower mandible similar in its curvature to the upper, its angle extremely narrow, and extending to near the middle, the ridge rounded, the sides with a shallow groove to near the end, the edges directly meeting those of the upper mandible, the tip obtuse.

Head rather small, oblong, compressed. Neck long and slender. Body rather slender. Feet long and rather stout. Toes rather small, scutellate above; first very small, second and fourth about equal, third considerably longer, flat beneath and broadly marginate, the three anterior connected by short webs, of which the outer is much larger. Bare part of tibia covered with transverse series of angular scales, as is the upper part of the tarsus, its lower two-thirds with scutella in front. Claws small, compressed, blunt, that of middle toe largest, curved outwards, with a sharp dilated inner edge.

Plumage soft and blended, on the fore part of the head very short. Wings long, very acute, narrow, the first quill longest, the second a little shorter, the rest rapidly graduated; secondaries of moderate length, slightly incurved, narrowly rounded, some of the inner greatly elongated and tapering. Tail short, much rounded, of twelve rounded feathers.

Upper mandible of a rich deep brown in its whole extent, as is the lower in its terminal half, its basal portion being flesh colour tinged with brown. Iris hazel. Feet light greyish-blue; claws dusky. The ground colour of the plumage is light yellowish-red; the head marked with oblong spots, the back with spots and bars of brownish-black. Alula and outer webs of first four quills deep brown, the rest of the quills of the general colour, barred on both webs with dark brown, as are the tail feathers. Chin or upper part of throat white, as is the lower eyelid; neck marked with longitudinal lines of brownish-black; sides barred with the same, as are the lower larger wing-coverts; the rest of the lower parts unspotted, the sides and under wing-coverts of a richer yellowish-red than the rest.

Length to end of tail 26 inches, to end of wings 25, to end of claws 29; extent of wings 40; wing from flexure $11\frac{1}{2}$; tail $4\frac{1}{4}$; bill along the back $8\frac{1}{2}$; along the edge of lower mandible 8; bare part of tibia 2; tarsus $3\frac{7}{8}$; middle toe $1\frac{1}{8}$, its claw $\frac{3}{4}$. Weight $1\frac{3}{4}$ lb.

Adult Female. Plate CCXXXI. Fig. 2.

The Female cannot be distinguished from the Male by external appearance.

The bill varies in length from 7 to 9 inches. It has been remarked that the tarsus of this species is scutellate anteriorly in its whole length, whereas that of *N. arquata* is scutellate on its lower half only; but this is incorrect; for both species have transverse series of small scales on the upper third of the tarsus.

THE HOODED MERGANSER.

MERGUS CUCULLATUS, LINN.

PLATE CCXXXII. MALE AND FEMALE.

EXCEPTING the Smew or White Nun, the Hooded Merganser is the handsomest of its family. Its broad and rounded crest of pure white, with an edging of jetty black, and which it closes or spreads out at pleasure, renders the male of this species conspicuous on the waters to which it resorts. The activity of its motions, the rapidity of its flight, and its other habits, contribute to render it a pleasing object to the student of nature, not less than to the sportsman. Its flesh, however, has a fishy taste and odour, although it is relished by some persons. It seems to prefer fresh water, and is by no means very frequent along the sea coast. Long, narrow, and moderately deep creeks, or small ponds, are more frequented by it than large rivers or lakes.

On the waters of the Western and Southern States, these Mergansers are seen to arrive from the north early in October, but generally later than many species of Ducks, although sooner than either the Red-breasted Merganser or the Goosander. At the approach of night, a person standing still on the banks of such a river as the Ohio, first hears the well-known sound of wings whistling through the air, presently after, a different noise, as if produced by an eagle stooping on her prey, when gliding downwards with the rapidity of an arrow, he dimly perceives the Hooded Mergansers sweeping past. Five or six, perhaps ten, there are; with quick beats of their pinions, they fly low over the waters in wide circles. Now they have spied the entrance of a creek; there they shoot into it, and in a few seconds you hear the rushing noise which they make as they alight on the bosom of the still pool. How often have I enjoyed such scenes, when enticed abroad by the clear light of the silvery moon, I have wandered on the shores of *la belle rivière*, to indulge in the contemplation of nature!

Up the creek the Mergansers proceed, washing their bodies by short plunges, and splashing up the water about them. Then they plume themselves, and anoint their feathers, now and then emitting a low grunting note of pleasure. And now they dive in search of minnows, which they

find in abundance, and which no doubt prove delicious food to the hungry travellers. At length, having satisfied their appetite, they rise on wing, fly low over the creek with almost incredible velocity, return to the broad stream, rove along its margin until they meet with a clean sand-beach, where they alight, and where, secure from danger, they repose until the return of day. A sly Raccoon may, when in search of mussels, chance to meet with the sleeping birds, and surprise one of them ; but this rarely happens, for they are as wary and vigilant as their enemy is cunning, and were the prowler to depend upon Hooded Mergansers for food, he would be lean enough.

This bird ranges throughout the United States during winter, content with the food it meets with in the bays and estuaries of the eastern coast, and on the inland streams. The dam of the Pennsylvania miller is as agreeable to it as that of the Carolina rice-planter. The Le High and Brandy-wine Creek have their fishes, as well as the waters of Bear Grass or Bayou Sara. Nay, the numerous streams and pools of the interior of the Floridas are resorted to by this species, and there I have found them full of life and gaiety, as well as on the Missouri, and on our great lakes. When the weather proves too cold for them they move southwards many of them removing towards Mexico.

The Hooded Merganser is a most expert diver, and so vigilant that at times it escapes even from the best percussion gun. As to shooting at it with a flint lock, you may save yourself the trouble unless you prevent it from seeing the flash of the pan. If you wound one, never follow it : the bird, when its strength is almost exhausted, immerses its body, raises the point of its bill above the surface, and in this manner makes its way among the plants, until finding some safe retreat along the shore, it betakes itself to it, and there remains, so that you may search for it in vain, unless you have a good dog. Even on wing it is not easily shot. If on a creek ever so narrow, it will fly directly towards its mouth, although you may be standing knee-deep in the middle. It comes up like a ball, rises and passes over head with astonishing speed, and if you shoot at it, do not calculate upon a hit. You may guess how many one may shoot in a day.

When I removed from Pennsylvania to Kentucky, the Hooded Merganser was not uncommon in the neighbourhood of Louisville during summer, and I told WILSON so. On several occasions I caught the young with a partridge net ; and let me assure you, Reader, that they

are not yellow, as is alleged by some writers, but very dark brown. Even when feathered they retain the same colour until the beginning of August, when they gradually change it for the dress of the adult female.

Like all the rest of the tribe, which, when far north, for the want of hollow trees, breed on the moss or ground, the Hooded Mergansers that remain with us nestle in the same kind of holes or hollows as the Wood Ducks ; at least I have found their nests in such situations seven or eight times, although I never saw one of them alight on the branch of a tree, as the birds just mentioned are wont to do. They dive as it were directly into their wooden burrows, where on a few dried weeds and feathers of different kinds, with a small quantity of down from the breast of the female, the eggs are deposited. They are from five to eight, measure one inch and three-fourths by one and three-eighths, and in other respects perfectly resemble those of the Red-breasted Merganser.

The young, like those of the Wood Duck, are conveyed to the water by their mother, who carries them gently in her bill ; for the male takes no part in providing for his offspring, but abandons his mate as soon as incubation has commenced. The affectionate mother leads her young among the tall rank grasses which fill the shallow pools or the borders of creeks, and teaches them to procure snails, tadpoles, and insects. The eggs are laid in May, and the young are out some time in June. On two occasions the parents would not abandon the young, although I expected that the noises which I made would have induced them to do so : they both followed their offspring into the net which I had set for them. The young all died in two days, when I restored the old birds to liberty.

The Hooded Merganser, as well as all the other species with which I am acquainted, moves with ease on the ground, nay even runs with speed. Those which leave the United States, take their departure from the first of March to the middle of May ; and I am induced to believe that probably one-third of them tarry for the purpose of breeding on the margins of several of our great lakes. When migrating, they fly at a great height, in small loose flocks, without any regard to order. Their notes consist of a kind of rough grunt, variously modulated, but by no means musical, and resembling the syllables *croo, croo, crooh*. The female repeats it six or seven times in succession, when she sees her young in danger. The same noise is made by the male, either when courting on the water, or as he passes on wing near the hole where the female is laying one of her eggs.

The males do not acquire the full beauty of their plumage until the third spring, but resemble the females for the first year. In the course of the second, the crest becomes more developed, and the white and black markings about the head and body are more distinct. The third spring they are complete, such as you see the bird represented in the plate.

MERGUS CUCULLATUS, *Linnaeus*. Syst. Nat. vol. i. p. 207.—*Latham*. Ind. Ornith. vol. ii. p. 830.—*Ch. Bonaparte*, Synops. of Birds of the United States, p. 397.

HOODED MERGANSER, MERGUS CUCULLATUS, *Swains. and Richards*. Fauna Bor. Amer. part ii. p. 463.—*Nuttall*, Manual, vol. ii. p. 465.

Adult Male. Plate CCXXXII. Fig. 1.

Bill about the length of the head, straight, somewhat cylindrical, deeper than broad at the base. Upper mandible with the dorsal outline sloping gently to the middle, then straight, along the unguis curved, the ridge broad at the base, then convex, the sides sloping at the base, convex towards the end, the edges serrated beneath, with twenty-five tooth-like lamellæ directed backwards, the unguis oblong, much curved, rounded at the end. Nasal groove oblong, subbasal, filled by a soft membrane; nostrils linear-elliptical, submedial, direct, pervious. Lower mandible, with the angle very narrow and extended to the roundish unguis, the sides rounded, with a long narrow groove, the edges with about twenty-five lamellæ.

Head of moderate size, compressed, oblong. Neck rather short, body full and depressed. Wings small. Feet placed far behind, extremely short; tibia bare for a short space above the joint; tarsus extremely short, compressed, anteriorly covered with scutella, and another row on the lower half externally, the sides reticulate. Hind toe very small, with an inferior free membrane; anterior toes double the length of the tarsus; second shorter than fourth, which is nearly as long as the third, all connected by reticulated webs, of which the outer is deeply cut; the outer toe slightly margined, the inner with a broad marginal membrane. Claws short, considerably curved, compressed, acute, that of the middle toe with a thin inner edge.

Plumage on the upper parts strong and imbricated, on the lower blended and glossed; on the head and neck soft and blended, the feathers of the upper part of the head elongated and capable of being erected into a long compressed rounded crest, those of the shoulders very broad and

elongated. Wings very short, small, curved, and pointed; primaries narrow, tapering, the first scarcely shorter than second, the rest rapidly graduated; secondaries short, narrow, rounded, the inner elongated and tapering. Tail short, graduated, of sixteen rounded feathers.

Bill black. Iris yellow. Feet yellowish-brown; claws dusky. Upper part of the head, back, smaller wing-coverts, quills and tail, brownish-black; sides of the head, upper half of neck all round, the broad extremities of the large feathers on the shoulders, the scapulars, inner secondaries, and larger wing-coverts, greenish-black. A broad patch of white behind the eye, very conspicuous in the erected crest. Lower part of neck and breast also white, as are the speculum and the central part of the inner secondaries. Sides beautifully marked with undulated transverse lines of yellowish-brown and brownish-black; lower tail-coverts whitish, similarly undulated.

Length to end of tail 19 inches, to end of wings $16\frac{3}{4}$, to end of claws 18; extent of wings 26; wing from flexure $7\frac{1}{2}$; tail 4; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $1\frac{3}{4}$; tarsus $1\frac{1}{4}$, middle toe $1\frac{3}{4}$, its claw $\frac{1}{4}$. Weight 1 lb. 7 oz.

Adult Female. Plate CCXXXII. Fig. 2.

The female is much smaller than the male. The crest is smaller and of a looser texture; the feathers of the shoulders not so large; those of the sides shorter and more compact. The bill is brownish-black towards the end and along the ridge, orange towards the base. The upper part of the head, including the crest, yellowish-brown; chin whitish, upper part of neck and sides of the head greyish-brown. The general colour of the back, upper surface of wings, tail, and sides, is blackish-brown, the feathers edged with paler, the edgings of the fore part of the back and shoulders larger and pale greyish-brown; speculum greyish-white; breast and abdomen pale yellowish-brown.

Length to end of tail $17\frac{1}{2}$ inches, to end of claws $16\frac{1}{2}$; extent of wings 24. Weight 1 lb.

The Young resemble the female. The young males after their first moult still resemble the female, but have the speculum and lower parts pure white.

THE SORA RAIL.

RALLUS CAROLINUS, LINN.

PLATE CCXXXIII. MALE, FEMALE, AND YOUNG.

Not many years have elapsed since it was supposed by some of the inhabitants of those districts to which thousands of this species of Rail resort at particular periods, that the Soras buried themselves in the mud at the approach of cold weather, for the purpose of there spending the winter in a state of torpidity. Many wonderful tales were circulated to convince the world of the truth of this alleged phenomenon ; but the fact was, as you will naturally anticipate, that the birds merely shifted their quarters, as no doubt they will continue to do, so long as the climate becomes too cold for them in winter. Prior to the days of WILSON, very little indeed had been published respecting the habits of our birds. Superstitious notions and absurd fancies occupied the place of accurate knowledge in the minds of people too earnestly engaged in more important pursuits, to attend to the history of the animals around them ; and with respect to the Sora in particular, I have no doubt that the settlers in our original forests cared very little about them, farther than that, when well cooked, they afforded a very savoury dish. Now, however, the case is very different. Many of the enterprising and industrious sons of Columbia have attained affluence and ease, and their children receive a liberal education. The sciences and arts, those attendants on peaceful commerce, are now sources of pleasure to many of our citizens, and at the present day there are not a few individuals among us, devotedly engaged in the pursuit of zoology in all its branches. So rapid has been the progress of ornithology in particular, that I should hesitate before asserting that any American, however uncultured, now believes that Rails burrow in the mud.

Those who have studied the habits of our birds, or of those of any part of the world, no longer admit that Swallows are condemned to search for warmth under the ice ; for we have proofs that these birds can with ease obtain all that is necessary for their comfortable subsistence, by removing on wing to a warmer region. The Soras and many other species of birds are similar in this respect to the Swallows. The Vulture that was supposed

to scent his food from afar, has well nigh lost his olfactory powers. Geese are no longer the offspring of sea-shells ; nor do Swans now chaunt their own requiem. The Pelican, too, has ceased to tear its own breast to gorge its voracious young. Students of nature have gradually rectified the various errors into which our ancestors had fallen ; and we should now just as readily expect to see a shoal of fishes issuing from beneath the plough, as to see a flock of Rails emerge from the mud, shake themselves, and fly off. This subject, then, being disposed of, I have now to relate to you the result of my observations on the habits of the Sora.

This bird, which I think might have been named the Pennsylvanian or Virginian Rail, enters the Union from the shores of Mexico, early in March, when many are to be seen in the markets of New Orleans. Some reach their northern destination by ascending along the margins of our western streams, or by crossing the country directly, in the manner of the Woodcock ; while those which proceed along the coast shorten their journey as much as possible by flying across the headlands of the numerous inlets or bays of our southern districts, retiring or advancing more slowly according to the state of the weather. Thus, those which cross the peninsula of Florida, through the marshes and lagoons that lead to the head waters of the St John's River, instead of travelling round the shores of Georgia and South Carolina, fly directly across towards Cape Lookout. It is nevertheless true, that a certain number of these birds follow the sinuosities of the shores, for I found some in the markets of Charleston, in the month of April, that had been killed in the immediate neighbourhood of that city, and I obtained others in various parts ; but the number of these is very small compared with that of those which cross at once. When their passage takes place, either during calm weather or with a favourable wind, the fortunate travellers pursue their journey by entering Pimlico Sound, and following the inner margins of the outward banks of this part of the coast until they reach Cape Henry. From thence some ascend the Chesapeake, while others make for the mouth of the Delaware, and these perhaps again meet on the borders of Lake Ontario, or the waters of the St Lawrence, after which they soon enter those portions of the country in which they breed, and spend a short but agreeable season.

Every person acquainted with the general movements of birds either during spring, when they pass northwards, or the autumnal months, when they are on their way to milder climes, is aware that, at the former period, their anxiety to reach the place of breeding is much greater than that

which they feel at any other period. Thus, in its movement southward, the Sora, like all other Rails, when returning with its progeny, which are yet feeble and unable to undergo much fatigue, proceeds considerably slower than in spring. Hence its appearance in autumn, in multitudes, in various places, where it is enticed by an abundance of food and comparative security, to tarry for some time, and recruit its strength. Thus, in September and part of October, the Sora is found in great numbers on the borders of our great lakes, feeding on wild oats, and on the reedy margins of the rivers of our Middle Districts. Several natural causes prevent birds of this species from following the sea-coast of the United States, while migrating either in spring or in autumn, the principal of which is the absence there of their favourite *Zizania* marshes, which are but very rarely met with to the east of the State of New York. This is probably the cause of the great rarity of this species in Massachusetts, whilst, so far as I know, none are ever found to the eastward of that State. These observations are corroborated by those of my friend THOMAS MACCULLOCH of Pictou, who never met with one of these birds during many years' residence in that part of Nova Scotia.

Having seen flocks of Soras winging their way close over the waters of the Gulf of Mexico, and between Cape Florida and the main shores of the Carolinas, in the month of April, when they were moving directly towards Cape Lookout, I have very little doubt that many return in the same track, in the end of October, when the young, well fed and strengthened, are able to follow their parents on wing, even across that large extent of water. I shall now dismiss this part of the subject, by adding, in confirmation of their capability of protracted flight, that some of these birds, when accidentally separated from their flock, have supported themselves on wing until they have met with vessels several hundred miles from land; and facts of this kind have been announced by persons of well known respectability.

During the autumnal months, a goodly number of Soras are found in the rice-fields and fresh-water marshes of the Carolinas. Sometimes also they have been shot in salt-water marshes, in spring, while on their northward migration. At this period they are very silent, until forced to fly. In those States none are seen during summer. Very few, it appears, remain in any part of the Middle Districts. My friend JOHN BACHMAN, however, was shewn some eggs of this bird, that had been found in the meadows below Philadelphia; and whilst I was in the company of my

friend EDWARD HARRIS, Esq. on a woodcock shooting expedition, my son shot some young birds scarcely fledged, and shortly afterwards an adult female. JOHN BACHMAN met with a nest on the shore of the Hudson, and I saw two in the marshes of Lake Champlain.

Fond of concealment, as all its tribe are, the Sora is rarely seen during day, although, being seminocturnal, it skulks amid the tall reeds or grasses, both by day and at night, in search of its food. Differing, however, in habit, as well as in form, from the Gallinules, it rarely abandons the retreats which it has chosen after the breeding season, and rises, when forced by tides, to the tops of the plants about it, climbing along or clinging to their stalks or leaves, with as much ease as it walks on the floating garbage, when persons in boats can see them without any difficulty. Whenever these occurrences take place, and the country around is thickly peopled, great havock is made among them. This particularly happens on the James and Delaware rivers, where thousands are annually destroyed during their autumnal stay. The sport of shooting Soras is much akin to that of shooting Clapper Rails, or Salt-Water-Marsh-Hens, which I have already described. But WILSON having given an account of it, as pursued when Soras were much more abundant than I ever saw them, I shall transcribe his description of the manner adopted by the sportsmen on the Delaware.

“ The usual method of shooting them, in this quarter of the country, is as follows:—The sportsman furnishes himself with a light batteau, and a stout experienced boatman, with a pole of twelve or fifteen feet long, thickened at the lower end to prevent it from sinking too deep into the mud. About two hours or so before high water, they enter the reeds, and each takes his post, the sportsman standing in the bow ready for action, the boatman, on the stern seat, pushing her steadily through the reeds. The Rail generally spring singly, as the boat advances, and at a short distance ahead, are instantly shot down, while the boatman, keeping his eye on the spot where the bird fell, directs the boat forward, and picks it up as the gunner is loading. It is also the boatman's business to keep a sharp look-out, and give the word ‘ mark ! ’ when a Rail springs on either side without being observed by the sportsman, and to note the exact spot where it falls until he has picked it up ; for this once lost sight of, owing to the sameness in the appearance of the reeds, is seldom found again. In this manner the boat moves steadily through and over the reeds, the birds flushing and falling, the gunner loading and firing, while the boat

man is pushing and picking up. The sport continues till an hour or two after high water, when the shallowness of the water, and the strength and weight of the floating reeds, as also the backwardness of the game to spring as the tide decreases, oblige them to return. Several boats are sometimes within a short distance of each other, and a perpetual cracking of musketry prevails along the whole reedy shores of the river. In these excursions it is not uncommon for an active and expert marksman to kill ten or twelve dozen in a tide. They are usually shot singly, though I have known five killed at one discharge of a double-barrelled piece. These instances, however, are rare."

"Such is the mode of Rail shooting in the neighbourhood of Philadelphia. In Virginia, particularly along the shores of James River, within the tide water, where the Rail or Sora are in prodigious numbers, they are also shot on the wing, but more usually taken at night in the following manner:—A kind of iron grate is fixed on the top of a stout pole, which is placed like a mast, in a light canoe, and filled with fire. The darker the night the more successful is the sport. The person who manages the canoe is provided with a light paddle, ten or twelve feet in length, and, about an hour before high water, proceeds through among the reeds, which lie broken and floating on the surface. The whole space, for a considerable way round the canoe, is completely enlightened, the birds stare with astonishment, and, as they appear, are knocked on the head with the paddle, and thrown into the canoe. In this manner, from twenty to eighty dozen have been killed by three Negroes in the short space of three hours!"

The flight of this little bird while migrating is low, and performed with a constant beating of the wings, as in the Coot and other birds of its kind. They pass swiftly along in compact flocks of from five to a hundred or more individuals. At times you see them rise in a long curve, as if they had perceived some dangerous object beneath them; then resume their ordinary direct flight, and are soon out of sight. On the contrary, when they are with us in autumn, they seem far from being alert on wing, flying slowly with dangling legs, and proceeding only to a short distance, when they drop among the reeds with their wings extended, as if they had been shot. If raised two or three times, it is extremely difficult to see them again; for on such occasions they will rather dive and hide under some floating weeds, keeping their bill only above the water. When walking leisurely, they throw up the tail, in the manner

of Gallinules, and if they apprehend danger in consequence of any suspicious sight or sound, they run off with great speed. Their notes are shrill and short, but reiterated, like those of *Rallus crepitans*, although by no means so loud and disagreeable. When wounded they dive well at the approach of the sportsman, and sometimes cling to the roots of the grasses for a few moments, but more usually rise under the cover of the floating leaves. Some persons still believe that these birds cannot be drowned; and this notion tempted my friend JOHN BACHMAN to make the experiment. In a note of his now before me, he says:—"I once, in company with some naturalists of Philadelphia, tried two experiments upon two Soras that had been slightly wounded in the wing, to ascertain how long they could live under the water. They were placed in a covered basket, which was sunk in the river. One remained fifteen, the other eight minutes, under water; and on being taken out, they were both found dead. We placed them in the sun for several days, but, I need hardly say, they did not revive."

The most curious habit or instinct of this species is the nicety of sense by which they can ascertain the last moment they can remain at any of the feeding grounds at which they tarry in autumn. One day, you may see or hear the Soras in their favourite marshes, you may be aware of their presence in the dusk of evening; but when you return to the place early next morning, they are all gone. Yesterday the weather was mild, to-day it is cold and raw; and no doubt the Soras were aware that a change was at hand, and secured themselves from its influence by a prompt movement under night. It is probable that these sudden removals gave rise to the idea of their diving into the mud.

RALLUS CAROLINUS, Linn. Syst. Nat. vol. i. p. 263.—*Ch. Bonaparte*, Synopsis of Birds of the United States, p. 334.

GALLINULA CAROLINA, Lath. Ind. Ornith. vol. ii. p. 771.

RAIL, *RALLUS CAROLINUS*, Wils. Amer. Ornith. vol. vi. p. 24. pl. 48. fig. 2. Male.

CAROLINA RAIL, Nuttall, Manual, vol. ii. p. 208.

Adult Male. Plate CCXXXIII. Fig. 1.

Bill shorter than the head, rather stout, deep, compressed, tapering. Upper mandible with the dorsal line nearly straight, being slightly convex towards the end, the ridge flattish for a very short space at the base, very slightly extended on the forehead, narrow in the rest of its extent;

the sides convex towards the end, the edges sharp, inflected, with a slight sinus close to the tip. Nasal groove broad and extending to two-thirds of the length of the bill; nostrils linear, lateral, submedial, pervious. Lower mandible with the angle long and narrow, the sides erect, the dorsal line sloping upwards, the edges inflected, the tip narrowed, the gape-line straight.

Head rather small, oblong, compressed. Neck of moderate length. Body rather slender, much compressed. Feet of moderate length, rather stout; tibia bare a short way above the joint; tarsus of ordinary length, compressed, anteriorly covered with broad scutella, posteriorly with smaller, and on the sides reticulated. Hind toe very short and slender, middle toe longest and longer than the tarsus, fourth considerably shorter than third, and a little longer than second; toes free, scutellate above, much compressed, with an inferior sharp margin. Claws rather long, exceedingly compressed, slightly arched, tapering to a fine point, flat and marginate beneath.

Plumage rather stiff, but blended, slightly glossed above. Feathers of the forehead with the shaft enlarged and slightly extended beyond the tip. Wings short and broad; alula large; primaries curved, broad tapering, but rounded, second longest, third scarcely shorter, first equal to sixth; secondaries broad and rounded. Tail extremely short, much rounded, of twelve feeble rounded feathers; the upper and lower tail-coverts nearly as long as the tail-feathers.

Bill yellow at the base, dusky towards the end. Iris bright chestnut. Feet yellowish-green; claws light brown. A broad band surrounding the base of the bill, the central part of the crown, the chin, and the fore neck in its whole length, brownish-black. Ear-coverts olive-brown; a band over the eye, the cheeks, and the sides of the neck, ash-grey. Sides of the crown, the hind neck, and the rest of the upper parts, olive-brown, the feathers brownish-black in the centre, those on the back with two marginal lines of white. Smaller wing-coverts of a lighter brown; secondary coverts margined with black and white markings; quills dusky olive-brown, as is the tail. Middle of breast and abdomen greyish-white; sides barred with brownish-black and greyish-white, as are the lateral feathers of the rump, those of the abdomen reddish-yellow.

Length to end of tail $9\frac{5}{8}$ inches; to end of wings $8\frac{3}{4}$, to end of claws 12; extent of wings 14; wing from flexure $4\frac{5}{8}$; tail 2; bill along the ridge

$\frac{1}{2}$, along the edge of the lower mandible $\frac{1}{2}$; tarsus $1\frac{5}{8}$; middle toe $1\frac{7}{8}$, its claw $\frac{4}{8}$. Weight 7 oz.

Adult Female. Plate CCXXXIII. Fig. 2.

The Female differs considerably from the Male in colouring. The naked parts and iris are similar, as are the upper parts generally; but the black around the base of the bill, on the head, and fore neck is wanting, the fore part of the head being light brown, the chin whitish, the sides of the neck light greyish-brown. The white lines of the back are duller, and the dark bands of the sides of a lighter tint.

Young Male. Plate CCXXXIII. Fig. 3.

The Young Male, after its first moult, is intermediate in colouring between the adult male and the female, but more like the latter, the black on the head and fore neck appearing in spots, and the sides of the neck being nearly as in the female.

THE RING-NECKED DUCK.

FULIGULA RUFITORQUES, BONAP.

PLATE CCXXXIV. MALE AND FEMALE.

THE Ring-necked Duck is abundant on all our western waters during autumn and winter. It is also met with along our Atlantic coasts; but there, although I have seen many individuals on the Chesapeake and other large arms of the sea, it is by no means so plentiful as in the interior. Its flesh is excellent, equalling in my opinion that of any other duck; and when it has been feeding along the margins of rivers, creeks, or ponds for a few weeks, it becomes very fat, tender, and juicy, and has none of the fishy flavour of those species which are in the habit of diving deep for their food. In shape, the Tufted Duck, or Ring-bill, as it is called in Kentucky, resembles the Scaup or Flocking Fowl, but is plumper and more rounded.

This bird arrives in Kentucky and the neighbouring States, as far down the Mississippi as New Orleans, from the 20th of September to the middle of October, at which latter period it may be found in the whole extent of the Union, from Massachusetts to Louisiana, being more numerous in some districts than in others, according to the suitableness of the place. They commonly move while on wing in flocks of from fifteen to twenty individuals, keeping rather scattered, and thus rarely affording what is called a good shot. They fly with rapidity, keeping at a considerable height, and the motion of their wings produces a constant whistling as they pass over head. Before alighting, they wheel and perform various evolutions, although they do not occupy so much time with them as Teals are wont to do.

They swim rather lightly and with ease, and, unlike the Scaups, experience no difficulty in rising on wing, whether from the land or from the water, but generally spring up at once, especially if alarmed. They have an almost constant practice of raising the head in a curved manner, partially erecting the occipital feathers, and emitting a note resembling the sound produced by a person blowing through a tube. At the approach of spring the males are observed repeating this action every now

and then, while near the females, none of which seem to pay the least attention to their civilities.

Whilst in ponds, they feed by diving and dabbling with their bills in the mud amongst the roots of grasses, of which they eat the seeds also, as well as snails and all kinds of aquatic insects. When on rivers, their usual food consists of small fish and crays, the latter of which they procure at the bottom. A male which I shot near Louisville, in the beginning of May, exhibited a protuberance of the neck so very remarkable as to induce me to cut the skin, when I found a frog, the body of which was nearly two inches long, and which had almost choked the bird, as it allowed me to go up within a dozen or fifteen paces before I took aim. This species remains with us in the Western country later than most others of its tribe, and not unfrequently as late as the Blue-winged Teal.

We are indebted for the discovery of this species to my friend the Prince of Musignano, who first pointed out the difference between it and the Tufted Duck of Europe. The distinctions that exist in the two species he ascertained about the time of my first acquaintance with him at Philadelphia in 1824, when he was much pleased on seeing my drawing of a male and a female, which I had made at Louisville in Kentucky previous to WILSON's visit to me there. WILSON supposed it identical with the European species.

The summer haunts and habits of this Duck have not been ascertained; for although Dr RICHARDSON mentions that he found it not rare in the fur countries, he says nothing of its eggs or nest. While with us it has no long crest, but I am inclined to think that at the commencement of the breeding season that appendage may be developed.

FULIGULA RUFITORQUES, *Ch. Bonaparte*, Synops. of Birds of United States, p. 393.

TUFTED DUCK, ANAS FULIGULA, *Wils. Amer. Ornith.* vol. viii. p. 60. pl. 67, fig. 5.

RING-NECKED DUCK, FULIGULA RUFITORQUES, *Swains. and Richards. Fauna-Bor.*

Amer. part ii. p. 453.—*Nuttall, Manual*, vol. ii. p. 439.

Adult Male. Plate CCXXXIV. Fig. 1.

Bill about the same length as the head, rather deeper than broad at the base, depressed and enlarged towards the end, the frontal angles acute. Upper mandible with the dorsal line at first sloping, then concave, along the unguis decurved, the ridge broad and flat at the base, then broadly convex, the sides nearly flat and perpendicular at the base, convex and

sloping towards the end, the edges soft, with about forty-five internal lamellæ, unguis obovate, curved. Nostrils subbasal, lateral, rather small, oval, pervious. Lower mandible flat, with the angle very long and rather narrow, the dorsal line very short, slightly convex, the edges with about sixty-five lamellæ and smaller intermediate ones above.

Head of moderate size, neck rather long and slender, body full and depressed, wings rather small. Feet very short, strong, placed rather far behind; tarsus very short, compressed, at its lower part anteriorly with two series of scutella, the rest covered with reticulated angular scales. Toes scutellate above, first very small, free, with a broad membrane beneath, fourth longest, third scarcely shorter; claws small, curved, compressed, obtuse, the hind one smaller, more curved and acute, that of the third toe with an inner sharp edge.

Plumage dense, soft, blended, rather glossy. Feathers of the middle of the head, and upper part of hind neck, very narrow and a little elongated; of the rest of the head and upper part of the neck very short, of the back and lower parts in general broad and rounded. Wings of moderate length, narrow, acute; primaries curved, strong, tapering, first longest, second very little shorter; secondaries broad, rounded, short, the inner longer and tapering. Tail very short, rather broad, much rounded, of sixteen rounded feathers.

Bill black, with a basal band, the edges of both mandibles, and a band across the upper towards the end, pale blue. Iris yellow. Legs greyish-blue, the webs brownish-black. The head, and upper part of the neck, greenish-black, with purple reflexions. A brownish-red collar, broader before, on the middle of the neck. Its lower part all round, as well as the back, scapulars, smaller wing-coverts, and posterior part of abdomen, brownish-black. Inner secondaries of the same colour, outer bluish-grey on the outer web, light brown on the inner, as are the primaries, of which the outer webs and tips are dark brown. Tail brownish-grey. Chin white, breast greyish-white, sides and fore part of abdomen greyish-white, minutely undulated with greyish-brown.

Length to end of tail 18 inches, to end of wings 16; extent of wings 28; wing from flexure $7\frac{3}{4}$; tail $2\frac{1}{2}$; bill along the back $2\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $1\frac{4}{8}$; middle toe $2\frac{9}{12}$, its claw $\frac{4}{8}$.

Adult Female. Plate CCXXXIV. Fig. 2.

The Female has the neck umber brown, the upper part of the head

darker, the back blackish-brown, the speculum bluish-grey, as in the male, the breast brownish-white, the loreal spaces and chin pale brown, the abdomen umber brown.

Length 16 inches.

The Tufted Duck of Europe, *Fuligula cristata*, is very intimately allied to this species. The bill of the latter is longer, narrower, and differently coloured, the unguis broader at the end, as is the flat triangular space at the base of the upper mandible. The bill of the Scaup Duck is still broader towards the end, with a much narrower unguis, and the flattened part of the upper mandible still narrower than in the Tufted Duck ; the colour of the speculum is also different, being bluish-grey in the Ring-necked Duck, and white in the two allied species. The females of the Ring-necked and Scaup Ducks, which are nearly similar in colour, differ in the speculum, and in the peculiar form of the bill.

THE SOOTY TERN.

STERNA FULIGINOSA, LATH.

PLATE CCXXXV. MALE.

EARLY in the afternoon of the 9th of May 1832, I was standing on the deck of the United States' revenue-cutter the Marion. The weather was very beautiful, although hot, and a favourable breeze wafted us onwards in our course. Captain ROBERT DAY, who stood near me, on looking toward the south-west, ordered some person to be sent to the top to watch the appearance of land. A young lad was instantly seen ascending the rigging, and not many minutes after he had attained his post, we heard from him the cry of "land." It was the low keys of the Tortugas, toward which we had been steering. No change was made in the course of the "Lady of the Green Mantle," who glided along as if aware of the knowledge possessed by her commander. Now the light-house lantern appeared, like a bright gem glittering in the rays of the sun. Presently the masts and flags of several wreckers shewed us that they were anchored in the small but safe harbour. We sailed on, and our active pilot, who was also the first lieutenant of the Marion, pointed out to me a small island which he said was at this season the resort of thousands of birds, which he described by calling them "Black and White Sea Swallows," and again another islet, equally well stocked with another kind of Sea Swallow, which he added were called Noddies, because they frequently alighted on the yards of vessels at night, and slept there. He assured me that both species were on their respective breeding-grounds by millions, that the eggs of the first lay on the sand under bushes, at intervals of about a foot, while the nests of the last were placed as thickly on the bushes of their own chosen island. "Before we cast anchor," he added, "you will see them rise in swarms like those of bees when disturbed in their hive, and their cries will deafen you."

You may easily imagine how anxious I was to realize the picture; I expressed a wish to be landed on the island; but the kind officer replied, "My good Sir, you will soon be tired of their incessant noise and numbers, and will enjoy the procuring of Boobies much better." After various tacks, we made our way through the curious and extremely danger-

ous channels leading to the small harbour, where we anchored. As the chain grated the ear, I saw a cloud-like mass arise over the "Bird Key," from which we were only a few hundred yards distant; and in a few minutes the yawl was carrying myself and my assistant ashore. On landing, I felt for a moment as if the birds would raise me from the ground, so thick were they all round, and so quick the motion of their wings. Their cries were indeed deafening, yet not more than half of them took to wing on our arrival, those which rose being chiefly male birds, as we afterwards ascertained. We ran across the naked beach, and as we entered the thick cover before us, and spread in different directions, we might at every step have caught a sitting bird, or one scrambling through the bushes to escape from us. Some of the sailors, who had more than once been there before, had provided themselves with sticks, with which they knocked down the birds as they flew thick around and over them. In less than half an hour, more than a hundred Terns lay dead in a heap, and a number of baskets were filled to the brim with eggs. We then returned on board, and declined disturbing the rest any more that night. My assistant, Mr H. WARD, of London, skinned upwards of fifty specimens, aided by Captain DAY's servant. The sailors told me that the birds were excellent eating, but on this point I cannot say much in corroboration of their opinion, although I can safely recommend the eggs, for I considered them delicious, in whatever way cooked, and during our stay at the Tortugas we never passed a day without providing ourselves with a good quantity of them.

The next morning Mr WARD told me that great numbers of the Terns left their island at two o'clock, flew off towards the sea, and returned a little before day, or about four o'clock. This I afterwards observed to be regularly the case, unless there happened to blow a gale, a proof that this species sees as well during the night as by day, when they also go to sea in search of food for themselves and their young. In this respect they differ from the *Sterna stolidus*, which, when overtaken at sea by darkness, even when land is only a few miles distant, alight on the water, and frequently on the yards of vessels, where if undisturbed they sleep until the return of day. It is from this circumstance that they have obtained the name of Noddy, to which in fact they are much better entitled than the present species, which has also been so named, but of which I never observed any to alight on a vessel in which I was for thirty-five days in the Gulf of Mexico, at a time when that bird was as

abundant during the day as the other species, of which many were caught at my desire by the sailors.

The present species rarely alights on the water, where it seems incommoded by its long tail; but the other, the *Sterna stolidus*, which, in the shape of its tail, and in some of its habits, shews an affinity to the Petrels, not only frequently alights on the sea, but swims about on floating patches of the Gulf Weed, seizing on the small fry and little crabs that are found among the branches of that plant, or immediately beneath them.

I have often thought, since I became acquainted with the habits of the bird which here occupies our attention, that it differs materially from all the other species of the same genus that occur on our coasts. The *Sterna fuliginosa* never dives headlong and perpendicularly as the smaller species are wont to do, such as *St. Hirundo*, *St. arctica*, *St. minuta*, *St. Dougallii*, or *St. nigra*, but passes over its prey in a curved line, and picks it up. Its action I cannot better compare to that of any other bird than the Night Hawk, while plunging over its female. I have often observed this Tern follow and hover in the wake of a porpoise, while the latter was pursuing its prey, and at the instant when by a sudden dash it frightens and drives toward the surface the fry around it, the Tern as suddenly passes over the spot, and picks up a small fish or two.

Nor is the flight of this Tern characterized by the buoyancy and undecidedness, if I may so speak, of the other species mentioned above, it being as firm and steady as that of the Cayenne Tern, excepting during the movements performed in procuring its food. Like some of the smaller gulls, this bird not unfrequently hovers close to the water to pick up floating objects, such as small bits of fat pork and greasy substances thrown overboard purposely for making the experiment. It is not improbable that the habits peculiar to this species, the Noddy, and one or two others, of which I shall have occasion to speak elsewhere, may tend to induce systematic writers to place them in a new "subgenus."

There is a circumstance connected with the habits of the two species of which I now more particularly speak, which, although perhaps somewhat out of place, I cannot refrain from introducing here. It is that the *Sterna stolidus* always forms a nest on trees or bushes, on which that bird alights with as much ease as a Crow or Thrush; whereas the *Sterna fuliginosa* never forms a nest of any sort, but deposits its eggs in a slight

cavity which it scoops in the sand under the trees. But, reader, let us return to the Bird Key.

Early the next morning I was put on shore, and remained there until I had completed my observations on the Terns. I paid no attention to their lamentable cries, which were the less piercing that on this occasion I did not molest them in the least. * Having seated myself on the shelly sand, which here formed the only soil, I remained almost motionless for several hours, in consequence of which the birds alighted about me, at the distance of only a few yards, so that I could plainly see with what efforts and pains the younger females deposited their eggs. Their bill was open, and their pantings indicated their distress, but after the egg had been expelled, they immediately walked off in an awkward manner, until they reached a place where they could arise without striking the branches of the bushes near them, when they flew away. Here and there, in numerous places within twenty yards of me, females, having their complement of eggs, alighted, and quietly commenced the labour of incubation. Now and then a male bird also settled close by, and immediately disgorged a small fish within the reach of the female. After some curious reciprocal nods of their heads, which were doubtless intended as marks of affection, the caterer would fly off. Several individuals, which had not commenced laying their eggs, I saw scratch the sand with their feet, in the manner of the common fowl, while searching for food. In the course of this operation, they frequently seated themselves in the shallow basin to try how it fitted their form, or find out what was still wanted to ensure their comfort. Not the least semblance of a quarrel did I observe between any two of these interesting creatures; indeed, they all appeared as if happy members of a single family; and as if to gratify my utmost wishes, a few of them went through the process of courtship in my presence. The male birds frequently threw their heads over their back as it were, in the manner of several species of gulls; they also swelled out their throats, walked round the females, and ended by uttering a soft puffing sound as they caressed them. Then the pair for a moment or two walked round each other, and at length rose on wing and soon disappeared. Such is one of the many sights it has been my good fortune to witness, and by each of them have I been deeply impressed with a sense of the pervading power of the Deity.

The Sooty Tern always lays three eggs as its full number, and in no

instance, among thousands of the nests which were on the Bird Key, did I find one more when the female was sitting close. I was desirous of ascertaining whether the male and the female incubate alternately; but this I was unable to do, as the birds frequently left their eggs for half an hour or even three quarters at a time, but rarely longer. This circumstance, together with the very slight difference in size and colour between the sexes, was the cause of my failure.

It was curious to observe their actions whenever a large party landed on the island. All those not engaged in incubation would immediately rise in the air and scream aloud; those on the ground would then join them as quickly as they could, and the whole forming a vast mass, with a broad extended front, would as it were charge us, pass over for fifty yards or so, then suddenly wheel round, and again renew their attack. This they would repeat six or eight times in succession. When the sailors, at our desire, all shouted as loud as they could, the phalanx would for an instant become perfectly silent, as if to gather our meaning; but the next moment, like a huge wave breaking on the beach, it would rush forward with deafening noise.

When wounded and seized by the hand, this bird bites severely, and utters a plaintive cry differing from its usual note, which is loud and shrill, resembling the syllables *oo-ee, oo-ee*. Their nests are all scooped near the roots or stems of the bushes, and under the shade of their boughs, in many places within a few inches of each other. There is less difference between their eggs, than is commonly seen in those of water birds, both with respect to size and colouring. They generally measure two inches and one-eighth, by one and a-half, have a smooth shell, with the ground of a pale cream colour, sparingly marked with various tints of lightish umber, and still lighter marks of purple, which appear as if within the shell. The Lieutenant, N. LACOSTE, Esq. informed me that shortly after the young are hatched, they ramble pell-mell over the island, to meet their parents, and be fed by them; that these birds have been known to collect there for the purpose of breeding, since the oldest wreckers on that coast can recollect; and that they usually arrive in May, and remain until the beginning of August, when they retire southward to spend the winter months. I could not however obtain a sufficiently accurate description of the different states of plumage which they go through, so as to enable me to describe them in the manner I should wish to do. All

that I can say is, that before they take their departure, the young are greyish-brown above, dull white beneath, and have the tail very short.

At Bird Key we found a party of Spanish Eggers from Havannah. They had already laid in a cargo of about eight tons of the eggs of this Tern and the Noddy. On asking them how many they supposed they had, they answered that they never counted them, even while selling them, but disposed of them at seventy-five cents per gallon ; and that one turn to market sometimes produced upwards of two hundred dollars, while it took only a-week to sail backwards and forwards and collect their cargo. Some eggers, who now and then come from Key West, sell their eggs at twelve and a half cents the dozen ; but wherever these eggs are carried, they must soon be disposed of and eaten, for they become putrid in a few weeks.

On referring to my journals once more, I find the following remarks with reference to the Sooty Tern. It would appear that at some period not very remote, the Noddy, *Sterna stolidus*, must have had it in contemplation to appropriate to itself its neighbour's domains ; as on examination of this island, several thousand nests of that bird were found built on the tops of the bushes, although no birds of the species were about them. It is therefore probable that if such an attempt was made by them, they were defeated and forced to confine themselves to the neighbouring island, where they breed by themselves, although it is only a few miles distant. That such interferences and conflicts now and then occur among different species of birds, has often been observed by other persons, and in several instances by myself, particularly among Herons. In these cases, right or wrong, the stronger party never fails to dislodge the weaker, and keep possession of the disputed ground.

STERNA FULIGINOSA, *Lath.* Ind. Ornith. vol. ii. p. 804.—*Ch. Bonaparte*, Synops. of Birds of the United States, p. 355.

SOOTY TERN, *STERNA FULIGINOSA*, *Lath.* Synops. vol. vi. p. 352.—*Wils.* Amer. Ornith. vol. viii. p. 145. pl. 72. fig. 7.—*Nuttall*, Manual, vol. ii. p. 284.

Adult Male. Plate CCXXXV.

Bill longer than the head, strong, slender, nearly straight, compressed, very acute. Upper mandible with the dorsal line slightly arched, the ridge broad and convex at the base, narrowed towards the end, the

sides convex, the edges sharp and inflected, the tip acute. Nasal groove extended to beyond half the length of the bill, slightly inflected towards the edge; nostrils basal, linear, direct, pervious. Lower mandible with the angle very narrow, acute, extending to a little beyond the middle, the dorsal line straight, the sides convex, the sharp edges inflected, the tip very acute.

Head of moderate size, oblong, compressed; neck of moderate length; body slender; feet very small, wings and tail very long. Tibia bare for a short space; tarsus very short, slender, roundish, covered anteriorly with small scutella, laterally and behind with reticulated rather indistinct scales; toes small, slender, the first very small, the third longest, the fourth nearly as long, the second much shorter, all scutellate above, the anterior united by reticulated webs, having an incurved margin; claws curved, compressed, acute, that of hind toe smallest, of middle toe by much the largest, and having the inner edge thin and dilated.

Plumage soft, close, blended, very short on the head; the feathers in general broad and rounded. Wings very long, narrow and pointed; primary quills tapering but rounded, the first longest, the rest rapidly graduated; secondary short, broad, rather acute, the inner more tapering. Tail long, very deeply forked, of twelve feathers, of which the outer are tapering, the middle rounded and short.

Bill and feet black. Iris chestnut. Forehead white; lores, upper part of the head, the hind neck and all the upper parts, deep black glossed with blue, excepting the edges of the wings and the lateral tail-feathers, which are white, the latter with the inner web towards the end dusky. All the lower parts and the sides of the neck are pure white.

Length to end of tail $16\frac{1}{4}$ inches, to end of wings $15\frac{3}{4}$, to end of claws $11\frac{1}{2}$; extent of wings $34\frac{3}{4}$; wing from flexure 12 ; tail to the end $7\frac{3}{4}$, to the fork $3\frac{3}{4}$; bill along the ridge $1\frac{5}{8}$, along the edge of lower mandible $2\frac{1}{8}$; tarsus $\frac{1}{2}$; middle toe $\frac{3}{4}$, its claw $\frac{1}{8}$.

The Female is similar to the Male.

A WILD HORSE.

WHILE residing at Henderson in Kentucky, I became acquainted with a gentleman who had just returned from the country in the neighbourhood of the head waters of the Arkansas River, where he had purchased a newly caught "Wild Horse," a descendant of some of the horses originally brought from Spain, and set at liberty in the vast prairies of the Mexican lands. The animal was by no means handsome:—he had a large head, with a considerable prominence in its frontal region, his thick and unkempt mane hung along his neck to the breast, and his tail, too scanty to be called flowing, almost reached the ground. But his chest was broad, his legs clean and sinewy, and his eyes and nostrils indicated spirit, vigour, and endurance. He had never been shod, and although he had been ridden hard, and had performed a long journey, his black hoofs had suffered no damage. His colour inclined to bay, the legs of a deeper tint, and gradually darkening below until they became nearly black. I inquired what might be the value of such an animal among the Osage Indians, and was answered, that the horse being only four years old, he had given for him, with the tree and the buffalo tug fastened to his head, articles equivalent to about thirty-five dollars. The gentleman added, that he had never mounted a better horse, and had very little doubt, that if well fed, he could carry a man of ordinary weight from thirty-five to forty miles a-day, for a month, as he had travelled at that rate upon him, without giving him any other food than the grass of the prairies, or the canes of the bottom lands, until he had crossed the Mississippi at Natchez, when he fed him with corn. Having no farther use for him, now that he had ended his journey, he said he was anxious to sell him, and thought he might prove a good hunting horse for me, as his gaits were easy, and he stood fire as well as any charger he had seen. Having some need of a horse possessed of qualities similar to those represented as belonging to the one in question, I asked if I might be allowed to try him. "Try him, Sir, and welcome; nay, if you will agree to feed him and take care of him, you may keep him for a month, if you choose." So I had the horse taken to the stable and fed.

About two hours afterwards, I took my gun, mounted the prairie nag, and went to the woods. I was not long in finding him very sensible

to the spur, and as I observed that he moved with great ease both to himself and his rider, I thought of leaping over a log several feet in diameter, to judge how far he might prove serviceable in deer-driving or bear-hunting. So I gave him the reins, and pressed my legs to his belly without using the spur, on which, as if aware that I wished to try his mettle, he bounded off and cleared the log as lightly as an elk. I turned him, and made him leap the same log several times, which he did with equal ease, so that I was satisfied of his ability to clear any impediment in the woods. I next determined to try his strength, for which purpose I took him to a swamp, which I knew was muddy and tough. He entered it with his nose close to the water, as if to judge of its depth, at which I was well pleased, as he thus evinced due caution. I then rode through the swamp in different directions, and found him prompt, decided, and unflinching. Can he swim well? thought I;—for there are horses, which, although excellent, cannot swim at all, but will now and then lie on their side, as if contented to float with the current, when the rider must either swim and drag them to the shore, or abandon them. To the Ohio then I went, and rode into the water. He made off obliquely against the current, his head well raised above the surface, his nostrils expanded, his breathing free, and without any of the grunting noise emitted by many horses on such occasions. I turned him down the stream, then directly against it, and finding him quite to my mind, I returned to the shore, on reaching which he stopped of his own accord, spread his legs, and almost shook me off my seat. After this I put him to a gallop, and returning home through the woods, shot from the saddle a turkey-cock, which he afterwards approached as if he had been trained to the sport, and enabled me to take it up without dismounting.

As soon as I reached the house of Dr RANKIN, where I then resided, I sent word to the owner of the horse that I should be glad to see him. When he came, I asked him what price he would take; he said, fifty dollars in silver was the lowest. So I paid the money, took a bill of sale, and became master of the horse. The Doctor, who was an excellent judge, said smiling to me, “Mr AUDUBON, when you are tired of him, I will refund you the fifty dollars, for depend upon it he is a capital horse.” The mane was trimmed, but the tail left untouched; the Doctor had him shod “all round,” and for several weeks he was ridden by my wife, who was highly pleased with him.

Business requiring that I should go to Philadelphia, Barro (he was

so named after his former owner) was put up for ten days and well attended to. The time of my departure having arrived, I mounted him ; and set off at the rate of four miles an hour ;—but here I must give you the line of my journey, that you may, if you please, follow my course on some such map as that of TANNER'S. From Henderson through Russellville, Nashville, and Knoxville, Abington in Virginia, the Natural Bridge, Harrisonburgh, Winchester and Harper's Ferry, Frederick and Lancaster to Philadelphia. There I remained four days, after which I returned by way of Pittsburgh, Wheeling, Zanesville, Chillicothe, Lexington, and Louisville to Henderson. But the nature of my business was such as to make me deviate considerably from the main roads, and I computed the whole distance at nearly two thousand miles, the post roads being rather more than sixteen hundred. I travelled not less than forty miles a-day, and it was allowed by the Doctor that my horse was in as good condition on my return as when I set out. Such a journey on a single horse may seem somewhat marvellous in the eyes of a European ; but in those days almost every merchant had to perform the like, some from all parts of the western country, even from St Louis on the Missouri, although the travellers not unfrequently, on their return, sold their horses at Baltimore, Philadelphia, or Pittsburg, at which latter place they took boat. My wife rode on a single horse from Henderson to Philadelphia, travelling at the same rate. The country was then comparatively new ; few coaches travelled, and in fact the roads were scarcely fit for carriages. About twenty days were considered necessary for performing a journey on horseback from Louisville to Philadelphia, whereas now the same distance may be travelled in six or seven days, or even sometimes less, this depending on the height of the water in the Ohio.

It may be not uninteresting to you to know the treatment which the horse received on those journeys. I rose every morning before day, cleaned my horse, pressed his back with my hand, to see if it had been galled, and placed on it a small blanket folded double, in such a manner that when the latter was put on, half of the cloth was turned over it. The surcingle, beneath which the saddle-bags were placed, confined the blanket to the seat, and to the pad behind was fastened the great coat or cloak, tightly rolled up. The bridle had a snaffle bit ; a breastplate was buckled in front to each skirt, to render the seat secure during an ascent ; but my horse required no crupper, his shoulders being high and well-formed. On starting he trotted off at the rate of four miles an hour,

which he continued. I usually travelled from fifteen to twenty miles before breakfast, and after the first hour allowed my horse to drink as much as he would. When I halted for breakfast, I generally stopped two hours, cleaned the horse, and gave him as much corn blades as he could eat. I then rode on until within half an hour of sunset, when I watered him well, poured a bucket of cold water over his back, had his skin well rubbed, his feet examined and cleaned. The rack was filled with blades, the trough with corn, a good-sized pumpkin or some hens' eggs, whenever they could be procured, were thrown in, and if oats were to be had, half a bushel of them was given in preference to corn, which is apt to heat some horses. In the morning, the nearly empty trough and rack afforded sufficient evidence of the state of his health.

I had not ridden him many days before he became so attached to me that on coming to some limpid stream, in which I had a mind to bathe, I could leave him at liberty to graze, and he would not drink if told not to do so. He was ever sure-footed, and in such continual good spirits, that now and then, when a turkey happened to rise from a dusting place before me, the mere inclination of my body forward was enough to bring him to a smart canter, which he would continue until the bird left the road for the woods, when he never failed to resume his usual trot. On my way homewards I met at the crossings of the Juniata River a gentleman from New Orleans whose name is VINCENT NOLTE. He was mounted on a superb horse, for which he had paid three hundred dollars, and a servant on horseback led another as a change. I was then an utter stranger to him, and as I approached and praised his horse, he not very courteously observed that he wished I had as good a one. Finding that he was going to Bedford to spend the night, I asked him at what hour he would get there. "Just soon enough to have some trouts ready for our supper, provided you will join when you get there." I almost imagined that Barro understood our conversation; he pricked up his ears, and lengthened his pace, on which Mr NOLTE caracolled his horse, and then put him to a quick trot, but all in vain, for I reached the hotel nearly a quarter of an hour before him, ordered the trouts, saw to the putting away of my good horse, and stood at the door ready to welcome my companion. From that day VINCENT NOLTE has been a friend to me. It was from him I received letters of introduction to the RATHBONES of Liverpool, for which I shall ever be grateful to him. We rode together as far as Shippingport, where my worthy friend NICHOLAS BER-

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THOUD, Esq. resided, and on parting with me he repeated what he had many times said before, that he never had seen so serviceable a creature as Barro.

If I recollect rightly, I gave a short verbal account of this journey, and of the good qualities of my horse, to my learned friend J. SKINNER, Esq. of Baltimore, who I believe has noticed them in his excellent Sporting Magazine. We agreed that the importation of horses of this kind from the Western Prairies might improve our breeds generally; and, judging from those which I have seen, I am inclined to think that some of them may prove fit for the course. A few days after reaching Henderson, I parted with Barro, not without regret, for a hundred and twenty dollars.

THE NIGHT HERON.

ARDEA NYCTICORAX, LINN.

PLATE CCXXXVI. ADULT MALE AND YOUNG.

THE Night Heron is a constant resident in the Southern States, where it is found in abundance in the low swampy tracts near the coast, from the mouth of Sabine River to the eastern boundaries of South Carolina. On the whole of that vast extent of country, it may be procured at all seasons. The adult birds keep farther south than the young, flocks of the latter remaining in South Carolina during the whole winter, and there the Night Herons are at that period more common than most other species of the family. In that State it is named "the Indian Pullet," in Lower Louisiana the Creoles call it "*Gros-bec*," the inhabitants of East Florida know it under the name of "Indian Hen," and in our Eastern States its usual appellation is "Qua Bird."

In the course of my winter rambles through East Florida, I met with several of the large places of resort of Night Herons, and, in particular, one remarkable for the vast number of birds congregated there. It is about six miles below the plantation of my friend JOHN BULLOW, Esq., on a bayou which opens into the Halifax River. There several hundred pairs appeared to be already mated, although it was only the month of January; many of the nests of former years were still standing, and all appeared to live in peace and contentment. My friend JOHN BACHMAN is acquainted with a place on Ashley River, about four miles distant from Charleston, where, among the branches of a cluster of live-oak trees, he has for the last fifteen years found a flock of about fifty of these birds during the winter. They were all young, not a single individual having been observed in the adult plumage, which is the more remarkable, because it is usual for young birds to retreat farther south during winter than the old. It is very common at this period for the sportsmen near Charleston to take their stand along the margins of the salt-water ponds, to which the Herons generally resort about dusk; and they frequently obtain several shots in an evening, but not a single old bird is known to have been killed at this season.

The Night Heron seldom advances very far into the country, but re-

mains on the low swampy lands along the coast. It is rare to see one farther up the Mississippi than the mouth of the Arkansas, to which a few are at times induced to go while rambling along the great stream. I never saw one, or heard of any, whilst in Kentucky, and I doubt much if they are ever seen in the upper parts of the State of Tennessee. The distance of a hundred miles from the tide-mark appears to be the farthest extent of their inland movements. On the other hand, they are fond of resorting to the islands along the coast, on many of which they breed.

At the approach of spring, great numbers of those which have wintered far south, leave their places of sojourn and migrate eastward, although probably an equal number remain in the low lands of Louisiana and the Floridas during the whole year. There, indeed, I have found them with eggs in April and May, and as young birds just fledged were very abundant at the same places, I concluded that these eggs were of the second laying. By the middle of March, the number of Night Herons is seen to increase daily in the Carolinas, and, about a month later, some make their appearance in the Middle Districts, where many remain and breed. They are not abundant in the State of New York, are seen sparingly breeding in Massachusetts, while only a few proceed to Maine, and farther eastward they are looked upon as a great curiosity. In Nova Scotia, Newfoundland, and Labrador, this species is quite unknown.

Some European writers have alleged, that the Night Heron is scarce in the United States, and of rare occurrence even in the southern parts. I wish these people had been with me and my friend BACHMAN, or with some of the many hundred persons who reside in the Southern Districts, or have travelled from Louisiana to North Carolina. How strange it would have appeared to such assertors of notions, to have seen a boat-load of Night Herons shot in the course of a few hours, and that too in the winter season.

Excepting while breeding, this species is extremely shy and wary, especially the adults. To approach them from a distance after they have seen you, is no easy task. They seem to know the distance at which your gun can injure them, they watch all your movements, and at the proper moment leave their perches. Should you chance to crack a stick while advancing towards them, they start at once, give a few raps with their wings in the manner of the Common Pigeon, and fly off as if delighted at your disappointment. On the contrary, you may shoot them with ease, if you lie in wait near the places to which they resort to roost

by day, and at which they generally arrive singly, or a few at a time, when, from your place of concealment among the trees, you may kill them the moment they alight over your head, and at a short distance. In this manner I have known forty or fifty procured by two sportsmen in the course of about two hours. You may also not unfrequently shoot them at any hour of the day, by starting them from secluded feeding-grounds, and thus I have shot a good many in different parts of the United States, and even in the Middle Districts. They are, however, rarely shot whilst on the ground, their hearing being still more acute than that of the American Bittern, which prefers squatting in the grass to flying off, when any noise is heard, whereas the Night Heron rises immediately.

This species breeds in communities around the stagnant ponds, either near rice plantations or in the interior of retired and secluded swamps, as well as on some of the sea islands covered with evergreen trees. Their heronries are formed either in low bushes, or in middle-sized or tall trees, as seems most convenient or secure. In the Floridas, they are partial to the mangroves that overhang the salt-water; in Louisiana, they prefer the cypresses; and in the Middle States, they find the cedars most suitable. In some breeding-places within a few miles of Charleston, which I visited in company with my friend JOHN BACHMAN, the nests were placed on low bushes, and crowded together, some within a yard of the ground, others raised seven or eight feet above it, many being placed flat on the branches, while others were in the forks. Hundreds of them might be seen at once, as they were built on the side of the bushes fronting the water. Those which I found in the Floridas were all placed on the south-west sides of mangrove islands, but were farther apart from each other, some being only about a foot above high-water mark, while others were in the very tops of the trees, which, however, scarcely exceeded twenty feet in height. In some inland swamps in Louisiana, I saw them placed on the tops of tall cypress trees about a hundred feet high, and along with those of *Ardea Herodias*, *A. alba*, and some *Anhinga*. In the Jerseys I have found the Night Herons breeding on water oaks and cedars; and my friend THOMAS NUTTALL informs me, that "in a very secluded and marshy island, in Fresh Pond, near Boston, there likewise exists one of these ancient heronries; and though the birds have been frequently robbed of their eggs, in great numbers, by mischievous boys, they still lay again immediately after, and usually succeed in raising a second brood." The same accurate observer remarks, that "about the middle of October, the

Qua Birds begin to retire from this part of Massachusetts, towards their southern winter quarters, although a few of the young birds still linger occasionally to the 29th or 30th of that month." This last observation is a farther evidence of the reluctance which the young of this species feel to go as far south during winter as the old birds.

The nest of the Night Heron is large, flattish, and formed of sticks placed in different directions, sometimes to the height of three or four inches. At times it is arranged with so little care, that the young upset it before they are able to fly. Many of the nests are annually repaired, and these birds, when they have once found an agreeable settlement, return regularly to it, until some calamity forces them to abandon it. The full number of the eggs is four, and they measure at an average two inches and one-sixteenth by an inch and a half. They are thin-shelled, and of a plain light sea-green colour. In about three weeks after the young are hatched, most of them leave the nest, and crawl about the branches, to which they cling firmly, ascending to the tops of the bushes or trees, and there awaiting the return of their parents with food. If you approach them at such times, the greatest consternation ensues both among the young and the old birds; the loud and incessant croaking which both have until then kept up, suddenly ceases; the parent birds rise in the air, sail around and above you, some alighting on the neighbouring trees; while the young scramble off in all directions to avoid being taken. So great at times is their terror, that they throw themselves into the water, and swim off with considerable rapidity, until they reach the shore, when they run and hide in every convenient place. Retire for half an hour, and you will be sure to hear the old and the young calling to each other; the noise gradually increases, and in a short time is as loud as ever. The stench emitted by the excrements with which the abandoned nests, the branches and leaves of the trees and bushes, and the ground, are covered, the dead young, the rotten and broken eggs, together with putrid fish and other matters, renders a visit to these places far from pleasant. Crows, Hawks and Vultures torment the birds by day, while Racoons and other animals destroy them by night. The young are quite as good for eating as those of the Common Pigeon, being tender, juicy, and fat, with very little of the fishy taste of many birds which, like them, feed on fishes and reptiles. At this period few if any of the old birds have the long feathers of the hind head, and these are not reproduced before the

latter part of the following winter, when they seem to attain their extreme length in a few weeks.

The flight of the Night Heron is steady, rather slow, and often greatly protracted. They propel themselves by regular flappings of the wings, and, like the true Herons, draw in their head on the shoulders, while their legs stretch out behind, and with the tail form a kind of rudder. When alarmed they at times rise high in the air, and sail about for a while. They sail in the same manner before alighting on their feeding grounds, which they rarely do without having previously attended to their security by alighting on the neighbouring trees and looking about them. Their migrations are performed under night, when their passage is indicated by their loud hoarse notes resembling the syllable *qua*, uttered at pretty regular intervals. On these occasions they appear to fly faster than usual.

On the ground, this bird exhibits none of the grace observed in all the true Herons; it walks in a stooping posture, the neck much retracted, until it sees its prey, when, with a sudden movement, it stretches it out and secures its food. It is never seen standing motionless, waiting for its prey, like the true Herons, but is constantly moving about in search of it. Its feeding places are the sides of ditches, meadows, the shady banks of creeks, bayous, and ponds or rivers, as well as the extensive salt-marshes and mud-bars left exposed at low water; and I have observed it to alight in the ponds in the suburbs of Charleston towards evening, and feed there. In all such situations, excepting the last, this bird may often be seen by day, but more especially in the evening or morning twilight, wading up to its ankles, or, as we commonly say, its knee-joints. Its food consists of fishes, shrimps, tadpoles, frogs, water-lizards, and leeches, small crustacea of all kinds, water insects, moths, and even mice, which seem not less welcome to it than its more ordinary articles of food. When satisfied, it retires to some high tree on the banks of a stream or in the interior of a swamp, and there it stands, usually on one leg, for hours at a time, apparently dosing, though seldom sound asleep.

When wounded, this bird first tries to make its escape by hiding among the grass or bushes, squatting the moment it finds what it deems a secure place; but if no chance of a safe retreat occurs, it raises its crest, ruffles its feathers, and, opening its bill, prepares to defend itself. It can bite pretty severely, but the injury inflicted by its bill is not to be compared with that produced by its claws, which on such occasion,

it uses with much effect. If you seize it, it utters a loud, rough, continued sound, and tries to make its escape whenever it perceives the least chance.

The Night Heron undergoes three annual changes of plumage ere it attains its perfect state, although many individuals breed in the spring of the third year. After the first autumnal moult, the young is as you see it represented in the plate. In the second autumn, the markings of the neck and other parts have almost entirely disappeared; the upper parts of the head have become of a dull blackish-green, mixing near the upper mandible with the dull brown of the first season, while the rest of the plumage has assumed a uniform dull ochreous greyish-brown. In the course of the following season, the bird exhibits the green of the shoulders and back, the head is equally richly coloured, and the frontal band between the upper mandible and the eye, and over the latter, is pure white. At this age it rarely has the slender white feathers of the hind head longer than an inch or two. The sides of the neck, and all the lower parts, have become of a purer greyish-white. The wings are now spotless in all their parts, and of a light brownish-grey, as is the tail. The following spring, the plumage is complete, and the bird is as represented in the plate. After this period, with the exception of losing its long crest-feathers after the young are hatched, it retains its colouring. No difference can be observed in the tints of the sexes, but the male is somewhat larger.

A very considerable difference in size is observable at all seasons in birds of this species. Some that are fully feathered, and therefore at least three years old, measure as much as four inches less than others of the same sex, and weigh less in proportion. These circumstances might suffice with some naturalists to attempt to form two species out of one, but in this they would certainly fail.

In the neighbourhood of New Orleans, and along the Mississippi, as far up as Natchez, the shooting of this species is a favourite occupation with the planters, who represent it as equalling any other bird in the delicacy of its flesh.

The frog, of which I have introduced a figure, is common in the retired swamps which the Night Heron frequents, and is often devoured by it. The flowering plants which you see, are abundant in the States of Georgia and South Carolina, as well as in the Floridas.

ARDEA NYCTICORAX, *Linn. Syst. Nat.* vol. i. p. 235.—*Lath. Ind. Ornith.* vol. ii. p. 678.

—*Ch. Bonaparte*, *Synops. of Birds of the United States*, p. 306.

NIGHT HERON, OR QUA BIRD, *Wils. Amer. Ornith.* vol. vii. p. 3, pl. 51, fig. 2. Adult.

Fig. 3. Young.

QUA BIRD, OR AMERICAN NIGHT HERON, *ARDEA DISCORS*, *Nuttall, Manual*, vol. ii. p. 54.

Adult Male in Spring. Plate CCXXXVI. Fig. 1.

Bill a little longer than the head, strong, straight, compressed, tapering. Upper mandible with the dorsal line slightly arched and declinate, the ridge broad and rather rounded at the base, narrowed towards the end, the sides sloping, the edges very sharp and inflected, obscurely serrated with minute oblique slits, and having a distinct notch close to the compressed, rather obtuse tip. Nasal groove wide at the base, extending narrow to near the tip; nostrils basal, linear, wider behind, longitudinal. Lower mandible with the angle very long and narrow, the dorsal line straight and sloping upwards, the sides flat, the sharp obscurely jagged edges slightly inflected, the tip very acute.

Head oblong, much compressed; eyes large. Neck long. Body rather slender, compressed. Feet rather long, robust; tibia bare at its lower part; tarsus covered anteriorly along its upper two-thirds with scutella, below and on the sides with large angular scales; toes long and rather slender, scutellate above, flat beneath, marginate; hind toe stout, fourth a little longer than second, third much longer; claws of moderate size, stout, arched, compressed, rather acute, that of middle toe beautifully pectinate on the inner edge.

Plumage soft, blended. Feathers of the upper and hind part of the head elongated and loose, with three very long, linear incurved occipital feathers, having their webs inflected. The feathers of the neck, especially of its lower part and sides, are also elongated, the latter curved backwards. Wings of moderate length, broad, rounded; primaries broad, rounded, the third longest, the first longer than the fourth. Tail short, slightly rounded, of twelve broad, rounded feathers.

Bill black. Bare loreal space and eyelids yellowish-green; iris bright red. Feet yellow; claws brown. Feathers on the upper part of the head, the fore part of the back, and the scapulars, glossy blackish-green; anterior part of forehead white; neck anteriorly white, on the sides and behind shaded into pale lilac, the lower elongated feathers tinged with

cream-colour; breast and abdomen white, similarly tinged. Wings, rump, and tail, light greyish-blue, tinged with lilac.

Length to end of tail $25\frac{7}{8}$ inches, to end of wings $25\frac{1}{2}$, to end of claws $30\frac{4}{8}$; extent of wings 44; wing from flexure $13\frac{3}{4}$; tail 5; bill along the ridge $3\frac{2}{8}$, along the edge of lower mandible $4\frac{2}{8}$; bare part of tibia $1\frac{1}{4}$; tarsus $3\frac{1}{4}$; middle toe 3, its claw $\frac{7}{8}$. Weight 1 lb. 14 oz.

Young after first moult. Plate CCXXXVI. Fig. 2.

Bill and bare space about the eye yellowish-green, the ridge of the upper mandible, and part of the lower towards the end, black. Iris bright red. Feet pale greenish-yellow. At this period the occipital feathers are not developed. The general colour of the upper parts is light greyish-brown, the edges of the feathers paler; that of the lower parts dull white, tinged with grey and cream colour, with the central part of each feather greyish-brown; the feathers of the back and wings, as well as the secondary quills, have a long triangular spot of brownish-white at the end; the rump and tail more tinged with bluish-grey.

The Adult Female resembles the Male.

AMARYLLIS ATAMASCO, Willd. Sp. Pl. vol. ii. p. 51. *Pursh*, Flora Amer. Sept. vol. i. p. 222.

This species, which grows in swamps, and moist woods, in Virginia and Carolina, is characterized by having an acute bifid spatha, an erect funnel-shaped corolla of a pale rose-colour or pure white, with a short tube at the base, the segments nearly equal, as are the declinate stamens. It flowers in June and July, and attains a height of from eight inches to a foot.

THE HUDSONIAN CURLEW.

NUMENIUS HUDSONICUS, LATH.

PLATE CCXXXVII. MALE.

THE habits of this species, which until a few years ago was always confounded with the Esquimaux Curlew, *Numenius borealis*, are yet in a great measure unknown. Every person who writes on American birds repeats, that it arrives at Hudson's Bay, breeds farther north, &c.; but none has yet given any of those details so necessary to enable the student of nature to judge in what respects this species resembles, or differs from others, at the season of reproduction. During my visit to Labrador, I made diligent inquiry respecting it and the Esquimaux Curlew, but I obtained no information farther than that the latter is extremely abundant for a few weeks in early autumn, and that the present species was entirely unknown. Even Mr JONES and his sons, who had probably killed thousands of the species just mentioned, had never seen it in the course of their long residence at Bras d'Or. Nor is our information respecting their winter retreats much better, for scarcely any of them are ever seen in the colder months within the limits of the United States, and their movements during their migrations are more rapid than those of most water birds. In short, I am unable to present you with such an account of them as I could have wished.

I have found this species abundant on the shores of New Jersey in the month of May, and there they remain a few weeks. I once saw a large flock of them near Charleston, in the month of December, and I have found them in the Boston market in September. None were ever seen by me in any part of the interior, where, indeed, it is probable they very seldom make their appearance. As I have nothing of any importance to add, I shall present you with a few extracts, from WILSON and NUTTALL, both of whom have had opportunities of observing this species.

"The Short-billed Curlew," says the former, "arrives in large flocks on the sea-coast of New Jersey early in May, from the south, frequents the salt-marshes, muddy shores, and inlets, feeding on small worms and minute shell-fish. They are most commonly seen on mud-flats at low water, in company with various other waders; and at high water roam

along the marshes. They fly high, and with great rapidity. A few are seen in June, and as late as the beginning of July, when they generally move off toward the north. Their appearance on these occasions is very interesting: they collect together from the marshes as if by premeditated design, rise to a great height in the air, usually an hour before sunset, and, forming in one vast line, keep up a constant whistling on their way to the north, as if conversing with one another to render the journey more agreeable. Their flight is then more slow and regular, that the feeblest may keep up with the line of march; while the glittering of their beautifully speckled wings, sparkling in the sun, produces altogether a very pleasing spectacle.

“In the month of June, while the dewberries are ripe, these birds sometimes frequent the fields, in company with the Long-billed Curlews, where brambles abound; soon get very fat, and are at that time excellent eating.”

Nuttall says, “From the middle of August to the beginning of September, they arrive in the vicinity of Massachusetts Bay, and other parts of New England, frequenting the pastures as well as marshes, and fatten on grasshoppers and berries, till the time of their departure, about the close of September; and they wholly disappear from New Jersey, on their way to the south, early in the month of November.”

I have only to add, that, having compared specimens of the present species with the Whimbrel of Europe, *Numenius Phæopus*, I am satisfied that they are perfectly distinct.

NUMENIUS HUDSONICUS, *Lath. Ind. Ornith.* vol. ii. p. 712.—*Ch. Bonaparte*, Synops. of Birds of the United States, p. 314.—*Swains. and Richards*, Fauna Bor. Amer. part ii. p. 377.

ESQUIMAUX CURLEW, *SCOLOPAX BOREALIS*, *Wils. Amer. Ornith.* vol. vii. p. 92. pl. 59. fig. 1.

ESQUIMAUX CURLEW, NUMENIUS HUDSONICUS, *Nuttall*, Manual, vol. ii. p. 97.

Adult Male. Plate CCXXXVII.

Bill much longer than the head, very slender, subcylindrical, compressed, slightly arched. Upper mandible with the dorsal line slightly arched, the sides, excepting at the base, rounded, and marked with a narrow groove extending more than two-thirds of its length, the ridge rather flattened at the base, convex and narrower towards the end, the edge-

rather obtuse. Nostrils basal, lateral, longitudinal, linear. Lower mandible with the dorsal line arched, or nearly parallel to that of the upper, the angle extremely narrow and extended to near the end, the sides at the base nearly erect with a shallow groove close to the rather obtuse edge; the tips obtuse, and about equal in length.

Head rather small, oblong, compressed. Neck rather long, slender. Body rather full. Feet of moderate length, slender. Tibia bare a considerable way above the joint; tarsus with numerous anterior scutella, excepting in its upper fourth, where, and on the sides, it is reticulated. Toes small, scutellate above; first very small, second and fourth about equal, third considerably longer; the anterior toes marginate, and connected at the base by short webs, of which the outer is larger. Claws small, compressed, obtuse, that of middle toe much larger, curved outwards, with a sharp dilated inner edge.

Plumage soft and blended, on the fore part of the head very short; the feathers in general small, oblong or ovate and rounded. Wings rather long, very acute, narrow, the primaries tapering, the first longest, the second a little shorter, the rest regularly and rapidly graduated; secondaries short, incurved, rounded, excepting some of the inner, which are greatly elongated and tapering. Tail short, rounded, of twelve rounded feathers.

Bill brownish-black, the basal half of lower mandible flesh colour. Iris dark brown. Feet greyish-blue, claws black. The upper part of the head is deep brown, with a central longitudinal line of white, and a broader lateral one of the same over each eye; a brown line from the bill to the eye, and another extending behind the latter. The neck all round is pale yellowish-grey, longitudinally streaked with brown, excepting the chin or upper part of the throat, which is greyish-white. The upper parts in general are blackish-brown, marked with numerous spots of brownish-white, there being several along the margins of each feather; the wings and rump are lighter, the upper tail-coverts and tail barred with brown and yellowish-grey, the latter tipped with white. Primaries and their coverts brownish-black, the outer unspotted on their outer web; all with transverse light markings on the inner; the secondaries like the smaller coverts. Breast and abdomen greyish-white, the sides tinged with cream-colour, and barred with pale greyish-brown; the outer lower tail-coverts with a few brown marks.

Length to end of tail 19 inches, to end of wings 18, to end of claws 21 ; wing from flexure $9\frac{1}{4}$; tail 4 ; extent of wings 33 ; bill along the back $4\frac{1}{4}$, along the edge of lower mandible $4\frac{1}{2}$; tarsus $2\frac{1}{8}$, middle toe $1\frac{5}{8}$, its claw $3\frac{1}{4}$. Weight 1 lb. $1\frac{1}{4}$ oz.

The Female resembles the male.

The bill varies greatly in length : in a specimen now before me, it is $2\frac{1}{8}$, in another $2\frac{9}{16}$, while in the individual figured it was $4\frac{1}{4}$.

THE GREAT MARBLED GODWIT.

LIMOSA FEDOA, VIEILL.

PLATE CCXXXVIII. MALE AND FEMALE.

THIS fine bird is found during winter on all the large muddy flats of the coast of Florida that are intermixed with beds of racoon oysters. As the tide rises it approaches the shores, and betakes itself to the wet savannahs. At this season it is generally seen in flocks of five or six, searching for food in company with the Tell-tale, the Yellow-shanks, the Long-billed Curlew, and the White Ibis. While feeding, it probes the mud and wet sand, often plunging its bill to its whole length, in the manner of the Common Snipe and the Woodcock. It is fond of the small crabs called fiddlers, many of which it obtains both by probing their burrows, and running after them along the edges of the salt meadows and marshes. Sometimes you see it wading in the water up to its body, and when about to lose ground, it rises and extends its wings, still continuing to search for fry, until forced to fly off by the increased depth of the water, when it alights on the shore and recommences its operations. While feeding on the banks, it appears to search for food between and under the oysters with singular care, at times pushing the bill sidewise into the soft mud beneath the shells. Towards the middle of the day, the separate flocks come together, assembling on some large sand-bar, where they remain for hours, trimming their plumage, after which many of them continue some time motionless, standing on one leg. Suddenly, however, they are all seen to stretch their wings upwards, their bleating notes are heard, and the next moment the flock rises, and disperses in small parties, each of which proceeds in a different direction in search of food.

Few birds are more shy or vigilant than the Great Marbled Godwit. It watches the movements of the gunner with extreme care, particularly while in small flocks, in which case it rarely happens that one can approach them, and they are more commonly shot by coming unawares over the concealed sportsman. When in large flocks I have known them to be neared, and killed in great numbers. On such occasions, they walk towards each other, until they are quite close, when they stand still. Then is the time for the gunner, who has driven them before him as it were, to

the extremity of a mud or sand-bar, to fire with a certainty of obtaining something worth his trouble, for besides the number killed by his first shot, he is likely to commit equal havock with the second, as they fly off in a dense mass.

On the 31st of May 1832, I saw an immense number of these birds on an extensive mud-bar bordering one of the Keys of Florida, about six miles south of Cape Sable. When I landed with my party, the whole, amounting to some thousands, collected in the manner mentioned above. Four or five guns were fired at once, and the slaughter was such, that I was quite satisfied with the number obtained, both for specimens and for food. For this reason, we refrained from firing at them again, although the temptation was at times great, as they flew over and wheeled round us for a while, until at length they alighted at some distance and began to feed. Those which we killed were plump, and afforded excellent eating. I was much surprised to find these Godwits so far south, but next morning, when none were to be seen excepting some wounded birds which we had not pursued, I concluded that the flock, which was the largest I have seen, had merely alighted there for the day.

The flight of this bird is regular and rather quick, although in the latter respect not to be compared with that of the Curlews. When flying to a considerable distance, or migrating, they usually proceed in extended lines, presenting an irregular front, which rarely preserves its continuity for any length of time, but undulates and breaks as the birds advance. The beat of their wings is regular, and they rarely utter any cries on such occasions.

This species enters the United States, on its return from its northern breeding-grounds, about the middle of August, and probably travels along the coast at that period as well as when proceeding northward, none having been seen by me or my party in Labrador or Newfoundland, and their passage having been observed only on the Atlantic shores of Nova Scotia, and the whole line of our coast, on different parts of which some of the flocks alight, and rest for a few weeks, both in spring and in autumn. I may add, that I never saw one of these birds beyond the distance of a few miles from the sea-shore.

LIMOSA FEDOA, *Ch. Bonaparte*, Synops. of Birds of the United States, p. 328.—*Swains. and Richards*, Fauna-Bor. Amer. part ii. p. 395.

GREAT MARBLED GODWIT, *SCOLOPAX FEDOA*, *Wils. Amer. Ornith.* vol. vii. p. 30. pl. 56. fig. 4.—*Nuttall*, Manual, vol. ii. p. 173.

Adult Male. Plate CCXXXVIII. Fig. 1.

Bill very long, slender, subcylindrical, tapering to the obtuse point, slightly recurved. Upper mandible with the dorsal line slightly curved upwards in its whole extent, the ridge convex, the sides with a narrow groove extending almost to the point, the edges rather obtuse, the tip very slightly enlarged. Nostrils basal, lateral, nearer the edge than the dorsal line, small, linear, pervious. Lower mandible with the angle very long and extremely narrow, the dorsal line slightly recurved, the sides with a narrow groove extending almost to the end, the edge rather blunt, the tip obtuse.

Head small, oblong, compressed. Neck rather long, slender. Body slender. Feet long and slender. Tibia bare for about a third, anteriorly scutellate; tarsus long, slender, covered anteriorly with numerous scutella, scutellate behind also, laterally reticulate; toes small, slender, scutellate above, flat beneath, broadly marginate, the anterior connected at the base by webs, of which the outer is much larger; first toe very small, second slightly shorter than fourth, third little longer. Claws small, compressed, slightly arched, obtuse, that of middle toe with the inner edge curved outwards and thin.

Plumage soft and blended, on the fore part of the head very short, on the neck short and almost downy, on the abdomen and sides full, on the back moderate; all the feathers oblong and rounded. Wings rather long, very acute, narrow; primaries tapering, the first longest, the second little shorter, the rest rapidly graduated; secondaries incurved, obliquely rounded, the inner elongated and tapering. Tail short, even, of twelve narrow, rounded feathers.

Bill dull flesh-colour in its basal half, the rest blackish-brown. Iris brown. Feet bluish-grey. The head and neck light yellowish-grey, the throat without markings, the upper part of the head streaked with blackish-brown, as is the hind-neck, the markings there being fainter. The rest of the upper parts spotted and barred with brownish-black and greyish-yellow. Alula and primary coverts brownish-black, as are the outer

webs of the three first quills, those of the other primaries, and both webs of the secondaries, reddish-ochre, all more or less mottled with dusky, and the primaries of that colour towards the end, but with the terminal margins whitish; the inner secondaries barred like the back, as are the tail-feathers. Breast, abdomen, and lower surface of wings, light reddish-yellow, the axillar feathers of a deeper tint, the sides faintly barred with dusky.

Length to end of tail $18\frac{1}{2}$ inches, to end of wings $19\frac{1}{2}$, to end of claws 21; wing from flexure 9; tail $3\frac{1}{2}$; bill along the ridge $4\frac{6}{12}$, along the edge of lower mandible $4\frac{4}{12}$; bare part of tibia $1\frac{7}{12}$; tarsus $2\frac{1}{12}$; middle toe $1\frac{8}{12}$, its claw $\frac{4}{12}$.

Adult Female. Plate CCXXXVIII. Fig. 2.

The Female is considerably larger than the male, but is similar in colouring, the lower parts of a less bright buff.

Length to end of tail $20\frac{1}{2}$ inches, to end of wings $21\frac{1}{2}$; bill 5.

The inner edge of the middle claw is usually broken, which is a common circumstance in birds that have it very thin, but there are no regular serratures or notches upon it.

THE AMERICAN COOT.

FULICA AMERICANA, GMEL.

PLATE CCXXXIX. MALE.

FROM November until the middle of April, the Coots are extremely numerous in the southern parts of the Floridas, and the lower portions of Louisiana. At that season they are seen in flocks of several hundreds, following their avocations on all the secluded bayous, grassy lakes, and inlets, which are so plentiful in those countries ; but after the period above mentioned none remain, and therefore it is certain none can breed there, although such is asserted by Mr BARTHEM, who no doubt mistook the Common Gallinule for the Coot, that bird breeding in those places in considerable numbers. During the month of September, the Coot is also abundant on all the western waters, and its appearance in those districts being so much earlier than in the Floridas, is a sure indication of the inland course of its migrations. On the sea coast, in fact, it is comparatively rare.

Although the curious form of their feet, and the situation of their legs, might induce one to suppose these birds incapable of moving on land with ease, experience proves the contrary, for they not only walk with freedom, but can run with great speed when necessary. They are accustomed to leave the water too, and resort to open lands on the margins of streams and lakes, for the purpose of feeding, both in the morning and in the evening. While ascending the Mississippi, being about fifty miles above New Orleans, on the 21st of March 1822, the weather cloudy, I had the pleasure of seeing about six or seven hundreds of these birds feeding on the grass of a savannah bordering the river. I took them while at some distance, for a great flock of Guinea Fowls. Their movements were brisk, they often struck at each other in the manner of the domestic fowl, and ran with surprising celerity. As I approached nearer, I plainly saw them nibble the tender grass, in the same manner as poultry ; and having found a place of concealment behind a rise of the ground, I laid myself flat, and observed their motions at leisure ; but during twenty minutes spent in that situation, I did not hear a single note from the flock. I fired among them, and killed five, on which the rest, after running a

few steps, all rose and flew off with speed towards the river, mounted high in the air, came curving over me, their legs hanging behind, their wings producing a constant whir, and at length alighted on a narrow channel between the shore, where I was, and a small island. Following them with caution, I got sufficiently near to some of them to be able to see them leap from the water to seize the young leaves of the willows that overhung the shores. While swimming, they moved with ease, although not with much speed, and used a constantly repeated movement of the head and neck, corresponding with that of the feet. Now, twenty or thirty of them would close their ranks, and swim up the stream in a lengthened body, when they would disperse, and pick up the floating substances, not one of them diving all the time. On firing at a large group of them that had approached me, they started off in various directions, patting the water with their feet, and rushing with extended wings, for thirty or forty yards, but without actually flying. After this, they made towards the brushy shores, and disappeared for about a quarter of an hour. The rest of the birds, which were a few hundred yards off, scarcely took notice of the report of the gun; and before I left the place, they had returned to the shore, and walked into another savannah, where they probably remained until night. The next morning not a single Coot could I find while looking for them, for several miles along the river, and I concluded that they had left the place, and continued their migratory journey northward, this being about the beginning of the time of their general departure.

Whilst at General HERNANDEZ's, in East Florida, I found the Coot abundant in every ditch, bayou, or pond. This was in December 1831, and in the next month I saw great flocks of them near the plantation of my friend JOHN BULLOW, Esq. Whilst on a visit to Spring Garden springs, at the head of the St John's River, I observed them to be equally abundant along the grassy margins of the lagoons and lakes. On my return from the upper parts of that river to St Augustine, on the 28th February, I saw large flocks of them already moving northward. They had suddenly become shy, and would rise before our boat, at a distance of a hundred yards or so, with apparently scarcely any difficulty, and fly in loose flocks at a considerable height, half a mile or more at a time, and without uttering a note. Indeed, the only sound I ever heard these birds utter, is a rough guttural note, somewhat resembling *cruck, cruck*, which they use when alarmed, or when chasing each other on the water in anger. I am doubtful whether our Coot cackles and cries by night and

by day, as has been reported ; on the other hand, I am pretty well assured that Gallinules and Rails of different species have been confounded with the Coot in this respect.

I never saw this species dive for food, and the only fish that I ever found in the many that I have opened, was very small minnows or fry, which I think they catch along the shallow edges of the water. Indeed, unless when wounded, our Coot feels great reluctance at immersing its body in the water ; at all events, it has not the quickness of any of the diving birds, and rarely escapes the shot of a common flint gun while attempting to get away. When wounded it dives to some distance, but as soon as it reaches the grass or reeds, it contents itself with lying flat on the water, and thus swimming to the nearest shore, on reaching which it at once runs off and hides in the first convenient place. When undisturbed, it feeds both by day and by night, and as often on land as on the water. Its food consists of seeds, grasses, small fishes, worms, snails, and insects, and along with these it introduces into its stomach a good quantity of rather coarse sand.

The principal breeding places of this species are yet unknown to me. At Charleston it was supposed that it breeds in the neighbourhood of that city ; but my friend BACHMAN while searching for their nests at the proper season, saw that the Common Gallinule was in fact the bird that had been taken for the Coot. My learned friend NUTTALL mentions that a pair had bred in Fresh Pond near Boston, and that he there saw parents and young. Some travelling lumberers assured me that the Coot breeds in numbers in the lakes lying between Mars Hill in Maine and the St Lawrence River ; but I can find no authentic accounts of its nest having been found in any part of the United States, although some probably breed on the borders of our northern lakes.

In Louisiana, this species is named *Poule d'Eau*, which is also applied to *Rallus crepitans*. In all other parts of the Union, it is known by the names of Mud Hen and Coot. The appellation of "Flusterers" given to it by Mr LAWSON in his History of South Carolina, never came to my ear, during my visits to that State.

These birds are frequently caught in the nets placed across the bayous of the lakes in the neighbourhood of New Orleans, for the purpose of catching Blue-winged Teals and other Ducks. They come against them while flying, but if the hunter is not extremely quick they make their escape by nimbly scrambling up, using their bill and feet until they reach

the outer part of the net, when they drop into the water like so many terapins. At times they congregate in vast numbers, and swim so closely that a hunter in my employ, while on Lake Barataria, killed eighty at a single shot. They are extremely abundant in the New Orleans' markets during the latter part of autumn and in winter, when the negroes and the poorer classes purchase them to make "gombo." In preparing them for cooking, they skin them like rabbits instead of plucking them.

Both old and young birds differ considerably in size and weight. The male, from which I drew the figure in the plate, was procured at General HERNANDEZ's, in East Florida, and was among the best of about thirty shot on one of my excursions there.

FULICA AMERICANA, *Lath.* Ind. Ornith. vol. ii. p. 779.—*Ch. Bonaparte*, *Synops. of Birds of the United States*, p. 338.

COMMON COOT, *FULICA ATRA*, *Wils.* Amer. Ornith. vol. ix. p. 61. pl. 73. fig. 1.

CINEREOUS COOT, *Nuttall*, *Manual*, vol. ii. p. 229.

Adult Male. Plate CCXXXIX.

Bill about the same length as the head, stout, straight, compressed, higher than broad at the base. Upper mandible with the dorsal line straight and slightly sloping, towards the end slightly arched and deflected, the ridge flattish at the base, and continuous with an oblong soft tumid plate which ascends on the forehead, the rest of the ridge convex; sides rapidly sloping, edges overlapping, sharp, with a slight notch close to the obtuse tip. Nasal groove wide, extending to two-thirds of the whole length of the mandible, filled with a soft bare membrane; nostrils linear, medial, lateral, direct, pervious. Lower mandible with the angle long, narrow, rounded, the dorsal line nearly straight, the sides flattish, the edges sharp.

Head small, oblong, much compressed. Neck of moderate length, slender. Body rather full, compressed. Feet of moderate length, strong; tibia bare a short way above the joint; tarsus rather short, compressed, broader below, anteriorly covered with broad scutella, laterally with angular scales, on the outer side behind a row of scutelliform scales; hind toe short, slender; middle toe longest, fourth longer than second; toes scutellate above, hind one with an inferior lobe, second with two larger inner and two smaller outer rounded lobes; third with three, fourth with

four on each side ; claws of moderate length, slightly arched; much compressed, acute, the middle one with a thin inner edge.

Plumage very soft and blended, on the head and neck short. Wings short, broad, rounded ; primaries curved, second longest, third little shorter, first rather longer than sixth, all broad and rounded ; secondaries broad, rounded with a minute tip, the inner elongated and tapering. Tail very short, much rounded, of twelve weak rounded feathers ; the upper and lower coverts nearly as long as the tail-feathers.

Bill greyish-white, with a dusky spot on each mandible towards the end ; frontal callosity white during life, brownish-red after death. Head and neck greyish-black, the upper parts deep bluish-grey, with an olivaceous tinge on the scapulars and inner secondaries. Quills greyish-brown, darker towards the tips ; the edge of the wings, outer margin of first quill, and tips of outer secondaries, white. Tail brownish-black ; lower tail-coverts white. The breast and abdomen are light bluish-grey, the latter paler, the sides darker ; the lower surface of the wings of the same dull leaden tint.

Length to end of tail $13\frac{1}{2}$ inches, to end of wings $14\frac{5}{8}$, to end of claws $18\frac{3}{4}$; extent of wings 25 ; wing from flexure $7\frac{1}{2}$; tail $2\frac{3}{4}$; bill along the back $1\frac{7}{8}$, along the edge of lower mandible $1\frac{2}{8}$; bare part of tibia $\frac{3}{4}$; tarsus 2 ; middle toe $2\frac{8}{8}$, its claw $\frac{7}{8}$. Weight 1 lb.

THE ROSEATE TERN.

STERNA DOUGALLII, MONT.

PLATE CCXL. ADULT.

ON the 28th of April 1832, it was my lot to be on the beautiful rocky islet named Indian Key, where I spent a few hours of the night in unsuccessful attempts to procure repose, which was effectually banished by the consciousness of my being in a portion of the country not yet examined by any industrious student of nature, and in which I expected to find much that would prove interesting. The rain fell in torrents, and the rattling of the large drops on the shingles of the veranda in which my hammock had been slung, together with the chillness of the air, contributed to keep me awake. Finding it useless to remain in bed, I roused my companions; it was just four o'clock, and in a few minutes all the people in the house were up, and breakfast preparing. Before six the rain abated, and as I was determined not to lose a day, the guns were mustered, we made our way to the boats, and pushed off through a gentle shower in quest of unknown birds! In about an hour the rain ceased, the sky gradually cleared, and the sun soon dried our clothes. About this time we observed a great number of Terns on a sand bar, which we approached. The birds were not shy, so that we obtained an opportunity of firing two guns at them, when we leaped out, and on wading to the shore picked up thirty-eight Roseate Terns and several of another species.

Beautiful, indeed, are Terns of every kind, but the Roseate excels the rest, if not in form, yet in the lovely hue of its breast. I had never seen a bird of this species before, and as the unscathed hundreds arose and danced as it were in the air, I thought them the Humming Birds of the sea, so light and graceful were their movements. Now they flocked together and hovered over us, again with a sudden dash they plunged towards us in anger; even their cries of wrath sounded musical, and although I had carried destruction among them, I felt delighted. As I have just said, I had not before seen a Roseate Tern, not even the skin of one stuffed with tow; the species was not in the Synopsis of my friend BONAPARTE, and now I had my cap filled to the brim with specimens.

You may rest assured that I took precious care of those which I had procured, but not another individual was robbed of life on that excursion. The other Terns were as new to me. I observed the form of their black bill and feet, the yellow tip of the former, and wrapped them up with care, while I tried to recollect the name they bore in books. To have found hundreds of the Roseate Tern in the Floridas, while I had anxious but slender hopes of meeting it on the coast of Labrador, was to me quite astonishing. So it was, however, and I determined to ransack every key and sand-beach, to try to find its breeding-ground. Nor were my desires ungratified.

The Roseate Tern spends the breeding season along the southern shores of the Floridas in considerable numbers. At different times in the course of nearly three months which I spent among the keys, I saw flocks of twenty, thirty, or more pairs, breeding on small detached rocky islands, scantily furnished with grass, and in the company of hundreds of Sandwich Terns. The two species appeared to agree well together, and their nests were intermingled. The full number of eggs of the present species is three. They differ considerably in size and markings; their average length, however, is an inch and three quarters, their breadth an inch and one-eighth; they are of a longish oval shape, rather narrowed at the small end, of a dull buff or clay colour, sparingly sprinkled and spotted with different tints of umber and light purple. They were deposited on the bare rocks, among the roots of the grasses, and left in fair weather to the heat of the sun. Like those of the Common Tern and other species, they are delicious eating. The eggs of the Sandwich Tern were more attended to during the day, but toward night both species sat on their eggs. I did not see any of the young, but procured a good number of those of the preceding year, which kept apart from the old birds, but had in all respects the same habits.

The Roseate Tern is at all times a noisy, restless bird; and on approaching its breeding place, it incessantly emits its sharp shrill cries, resembling the syllable *crāk*. Its flight is unsteady and flickering, like that of the Arctic or Lesser Terns, but rather more buoyant and graceful. They would dash at us and be off again with astonishing quickness, making great use of their tail on such occasions. While in search of prey, they carry the bill in the manner of the Common Tern, that is perpendicularly downward, plunge like a shot, with wings nearly closed, so as to immerse part of the body, and immediately reascend. They were seen

dipping in this manner eight or ten times in succession, and each time generally secured a small fish. Their food consisted of fishes, and a kind of small molluscous animal which floats near the surface, and bears the name of "sailor's button." They usually kept in parties of from ten to twenty, followed the shores of the sand-bars and keys, moving backwards and forwards much in the manner of the Lesser Tern, and wherever a shoal of small fish was found, there they would hover and dash headlong at them for several minutes at a time.

The wreckers informed me that this species returns regularly to these islands each spring, about the 10th of April, and goes off southward early in September. These birds, with their favourite companions the Sandwich Terns, habitually resorted to the sand-bars each day, to rest for an hour or two. I have never seen them on any part of our middle or eastern coast, and am of opinion that they rarely proceed farther eastward than the Capes of Florida, and that they are more attached to the immediate vicinity of the shores than the larger species, which more generally fly out to some distance. The delicate and beautiful rosy tint of the breast soon fades after death. Those specimens which were not skinned immediately after being procured did not retain it for a week, and in none of them was it perceptible, without separating the feathers, at the end of a month. In winter it disappears, as well as the glossy black of the head. The length of the outer tail-feathers varies considerably; but I could perceive no decided difference of size or colour in the sexes, although I thought the females somewhat smaller than the males.

STERNA DOUGALLII, *Mont. Ornith. Dict.*

HIRONDELLE-DE-MER DOUGALLI, *STERNA DOUGALLII*, *Temm. Man. d'Ornith. part ii*
p. 738.

ROSEATE TERN, *Nuttall, Manual, vol. ii. p. 278.*

Adult Male. Plate CCXL.

Bill longer than the head, slender, tapering, compressed, nearly straight, very acute. Upper mandible with the dorsal line slightly arched, the ridge rather broad and convex at the base, narrow towards the end, the sides convex, the edges sharp and inflected, the tip acute. Nasal groove short, extended to one-third of the length of the bill, deflected towards the edge; nostrils basal, linear, direct, pervious. Lower mandible with the angle extremely narrow, very acute, extending to a little beyond the

middle, the dorsal line straight, the sides convex, the sharp edges inflected, the tip extremely acute.

Head of moderate size, oblong; neck of moderate length; body very slender; feet small; wings and tail very long. Tibia bare for a considerable space; tarsus very short, slender, roundish, covered anteriorly with small scutella, laterally and behind with reticular scales; toes small, slender, the first very small, the third longest, the fourth nearly as long, the second much shorter, all scutellate above, the anterior united by reticulated webs having a concave margin; claws curved, compressed, acute, that of hind toe smallest, of middle toe by much the largest, and having the inner edge thin and dilated.

Plumage soft, close, blended, very short on the head; the feathers in general broad and rounded. Wings very long, narrow, and pointed; primary quills tapering, the first longest, the rest rapidly graduated; secondary short, broad, incurved, rounded, the inner more tapering. Tail long, very deeply forked, of twelve feathers, of which the outer are tapering, the middle short and rounded.

Bill brownish-black, deep orange at the base. Iris brown. Feet vermilion; claws blackish-brown, yellow at the base. The upper part of the head and elongated occipital feathers greenish-black; the hind neck white, the rest of the upper parts pale bluish-grey, the tail lighter; the edges of the wings, the tips and inner edges of the quills, and the shafts white. The first primary is black on the outer web and part of the inner, the next two are similarly marked, but with the black shaded over with pale grey, the loose barbules being of that colour; the other primaries become gradually lighter. The lower parts are of a beautiful light roseate hue, which soon fades after death; the under surface of wings and tail white.

Length to end of tail $14\frac{1}{2}$ inches, to end of wings 12, to end of claws $9\frac{1}{2}$; extent of wings 30; wing from flexure $9\frac{1}{2}$; tail to end of shortest feathers $4\frac{3}{4}$, to end of longest feathers $7\frac{1}{2}$; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $2\frac{1}{2}$; tarsus $1\frac{9}{16}$, middle toe $1\frac{9}{16}$, its claw $\frac{3}{16}$.

REMINISCENCES OF THOMAS BEWICK.

THROUGH the kindness of Mr SELBY of Twizel-House in Northumberland, I had anticipated the pleasure of forming an acquaintance with the celebrated and estimable BEWICK, whose works indicate an era in the history of the art of engraving on wood. In my progress southward, after leaving Edinburgh in 1827, I reached Newcastle-upon-Tyne about the middle of April, when Nature had begun to decorate anew the rich country around. The lark was in full song, the blackbird rioted in the exuberance of joy, the husbandman cheerily plied his healthful labours, and I, although a stranger in a foreign land, felt delighted with all around me, for I had formed friends who were courteous and kind, and whose favour I had reason to hope would continue. Nor have I been disappointed in my expectations.

BEWICK must have heard of my arrival at Newcastle before I had an opportunity of calling upon him, for he sent me by his son the following note:—"T. BEWICK's compliments to Mr AUDUBON, and will be glad of the honour of his company this day to tea at six o'clock." These few words at once proved to me the kindness of his nature, and, as my labours were closed for the day, I accompanied the son to his father's house.

As yet I had seen but little of the town, and had never crossed the Tyne. The first remarkable object that attracted my notice was a fine church, which my companion informed me was that of St Nicholas. Passing over the river by a stone bridge of several arches, I saw by the wharfs a considerable number of vessels, among which I distinguished some of American construction. The shores on either side were pleasant, the undulated ground being ornamented with buildings, windmills, and glass-works. On the water glided, or were swept along by great oars, boats of singular form, deeply laden with the subterranean produce of the hills around.

At length we reached the dwelling of the Engraver, and I was at once shewn to his workshop. There I met the old man, who, coming towards me, welcomed me with a hearty shake of the hand, and for a moment took off a cotton night-cap, somewhat soiled by the smoke of the place. He was a tall stout man, with a large head, and with eyes placed farther apart

than those of any man that I have ever seen:—a perfect old Englishman, full of life, although seventy-four years of age, active and prompt in his labours. Presently he proposed shewing me the work he was at, and went on with his tools. It was a small vignette, cut on a block of boxwood not more than three by two inches in surface, and represented a dog frightened at night by what he fancied to be living objects, but which were actually roots and branches of trees, rocks, and other objects bearing the semblance of men. This curious piece of art, like all his works, was exquisite, and more than once did I feel strongly tempted to ask a rejected bit, but was prevented by his inviting me up stairs, where, he said, I should soon meet all the best artists of Newcastle.

There I was introduced to the Misses BEWICK, amiable and affable ladies, who manifested all anxiety to render my visit agreeable. Among the visitors I saw a Mr GORD, and was highly pleased with one of the productions of his pencil, a full length miniature in oil of BEWICK, well drawn, and highly finished.

The old gentleman and I stuck to each other, he talking of my drawings, I of his wood-cuts. Now and then he would take off his cap, and draw up his grey worsted stockings to his nether clothes; but whenever our conversation became animated, the replaced cap was left sticking as if by magic to the hind part of his head, the neglected hose resumed their downward tendency, his fine eyes sparkled, and he delivered his sentiments with a freedom and vivacity which afforded me great pleasure. He said he had heard that my drawings had been exhibited in Liverpool, and felt great anxiety to see some of them, which he proposed to gratify by visiting me early next morning along with his daughters and a few friends. Recollecting at that moment how desirous my sons, then in Kentucky, were to have a copy of his works on Quadrupeds, I asked him where I could procure one, when he immediately answered “Here,” and forthwith presented me with a beautiful set.

The tea-drinking having in due time come to an end, young BEWICK, to amuse me, brought a bagpipe of a new construction, called the Durham Pipe, and played some simple Scotch, English and Irish airs, all sweet and pleasing to my taste. I could scarcely understand how, with his large fingers, he managed to cover each hole separately. The instrument sounded somewhat like a hautboy, and had none of the shrill warlike notes or booming sound of the military bagpipe of the Scotch High-

landers. The company dispersed at any early hour, and when I parted from BEWICK that night, I parted from a friend.

A few days after this I received another note from him, which I read hastily, having with me at the moment many persons examining my drawings. This note having, as I understood it, intimated his desire that I should go and dine with him that day, I accordingly went; but judge of my surprise when, on arriving at his house at 5 o'clock, with an appetite becoming the occasion, I discovered that I had been invited to tea and not to dinner. However, the mistake was speedily cleared up to the satisfaction of all parties, and an abundant supply of eatables was placed on the table. The Reverend WILLIAM TURNER joined us, and the evening passed delightfully. At first our conversation was desultory and multifarious, but when the table was removed, BEWICK took his seat by the fire, and we talked of our more immediate concerns. In due time we took leave, and returned to our homes, pleased with each other and with our host.

Having been invited the previous evening to breakfast with BEWICK at 8, I revisited him at that hour on the 16th April, and found the whole family so kind and attentive that I felt quite at home. The good gentleman, after breakfast, soon betook himself to his labours, and began to shew me, as he laughingly said, how easy it was to cut wood; but I soon saw that cutting wood in his style and manner was no joke, although to him it seemed indeed easy. His delicate and beautiful tools were all made by himself, and I may with truth say that his shop was the only artist's "shop" that I ever found perfectly clean and tidy. In the course of the day BEWICK called upon me again, and put down his name on my list of subscribers in behalf of the Literary and Philosophical Society of Newcastle. In this, however, his enthusiasm had misled him, for the learned body for which he took upon himself to act, did not think proper to ratify the compact.

Another invitation having come to me from Gatehead, I found my good friend seated in his usual place. His countenance seemed to me to beam with pleasure as he shook my hand. "I could not bear the idea," said he, "of your going off, without telling you, in written words, what I think of your *Birds of America*. Here it is in black and white, and make of it what use you may, if it be of use at all." I put the unsealed letter in my pocket, and we chatted on subjects connected with natural

history. Now and then he would start and exclaim, "Oh, that I were young again! I would go to America too. Hey! what a country it will be, Mr AUDUBON." I retorted by exclaiming, "Hey! what a country it is already, Mr BEWICK!" In the midst of our conversation on birds and other animals, he drank my health and the peace of all the world in hot brandy toddy, and I returned the compliment, wishing, no doubt in accordance with his own sentiments, the health of all our enemies. His daughters enjoyed the scene, and remarked, that for years, their father had not been in such a flow of spirits.

I regret that I have not by me at present the letter which this generous and worthy man gave me that evening, otherwise, for his sake, I should have presented you with it. It is in careful keeping, however, as a memorial of a man whose memory is dear to me; and be assured I regard it with quite as much pleasure as a manuscript "*Synopsis of the Birds of America*," by ALEXANDER WILSON, which that celebrated individual gave to me at Louisville in Kentucky, more than twenty years ago. BEWICK's letter, however, will be presented to you along with many others, in connection with some strange facts, which I hope may be useful to the world. We protracted our conversation beyond our usual time of retiring to rest, and at his earnest request, and much to my satisfaction, I promised to spend the next evening with him, as it was to be my last at Newcastle for some time.

On the 19th of the same month I paid him my last visit, at his house. When we parted, he repeated three times, "God preserve you, God bless you!" He must have been sensible of the emotion which I felt, and which he must have read in my looks, although I refrained from speaking on the occasion.

A few weeks previous to the death of this fervent admirer of nature, he and his daughters paid me a visit in London. He looked as well as when I had seen him at Newcastle. Our interview was short but agreeable, and when he bade adieu, I was certainly far from thinking that it might be the last. But so it was, for only a very short time had elapsed when I saw his death announced in the newspapers.

My opinion of this remarkable man is, that he was purely a son of nature, to whom alone he owed nearly all that characterized him as an artist and a man. Warm in his affections, of deep feeling, and possessed of a vigorous imagination, with correct and penetrating observation, he

needed little extraneous aid to make him what he became, the first engraver on wood that England has produced. Look at his tail-pieces, Reader, and say if you ever saw so much life represented before, from the glutton who precedes the Great Black-backed Gull, to the youngsters flying their kite, the disappointed sportsman who, by shooting a magpie, has lost a woodcock, the horse endeavouring to reach the water, the bull roaring near the style, or the poor beggar attacked by the rich man's mastiff. As you turn each successive leaf, from beginning to end of his admirable books, scenes calculated to excite your admiration everywhere present themselves. Assuredly you will agree with me in thinking that in his peculiar path none has equalled him. There may be men now, or some may in after years appear, whose works may in some respects rival or even excel his, but not the less must THOMAS BEWICK of Newcastle-on-Tyne be considered in the art of engraving on wood what LINNÆUS will ever be in natural history, though not the founder, yet the enlightened improver and illustrious promoter.

THE GREAT BLACK-BACKED GULL.

LARUS MARINUS, LINN.

PLATE CCXLI. MALE.

HIGH in the thin keen air, far above the rugged crags of the desolate shores of Labrador, proudly sails the tyrant Gull, floating along on almost motionless wing, like an eagle in his calm and majestic flight. On widely extended pinions, he moves in large circles, constantly eyeing the objects below. Harsh and loud are his cries, and with no pleasant feeling do they come on the winged multitudes below. Now onward he sweeps, passes over each rocky bay, visits the little islands, and shoots off towards the mossy heaths, attracted perhaps by the notes of the Grouse or some other birds. As he flies over each estuary, lake, or pool, the breeding birds prepare to defend their unfledged broods, or ensure their escape from the powerful beak of their remorseless spoiler. Even the shoals of the finny tribes sink deeper into the waters as he approaches; the young birds become silent in their nests or seek for safety in the clefts of the rocks; the Guillemots and Gannets dread to look up, and the other Gulls, unable to cope with the destroyer, give way as he advances. Far off among the rolling billows, he spies the carcass of some monster of the deep, and, on steady wing, glides off towards it. Alighting on the huge whale, he throws upwards his head, opens his bill, and, louder and fiercer than ever, sends his cries through the air. Leisurely he walks over the putrid mass, and now, assured that all is safe, he tears, tugs, and swallows piece after piece, until he is crammed to the throat, when he lays himself down surfeited and exhausted, to rest for a while in the feeble sheen of the northern sun. Great, however, are the powers of his stomach, and ere long the half-putrid food which vulture-like he has devoured, is digested. Like all gluttons, he loves variety, and away he flies to some well-known isle, where thousands of young birds or eggs are to be found. There, without remorse, he breaks the shells, swallows their contents, and begins leisurely to devour the helpless young. Neither the cries of the parents, nor all their attempts to drive the plunderer away, can induce him to desist until he has again satisfied his ever-craving appetite. But although tyrannical, the Great Gull is a coward, and meanly does he sneak off when he sees

the Skua fly up, which, smaller as it is, yet evinces a thoughtless intrepidity, that strikes the ravenous and merciless bird with terror.

If we compare this species with some other of its tribe, and mark its great size, its powerful flight, and its robust constitution, we cannot but wonder to find its range so limited during the breeding season. Few individuals are to be found northward of the entrance into Baffin's Bay, and rarely are they met with beyond this, as no mention is made of them by Dr RICHARDSON in the *Fauna Boreali-Americana*. Along our coast, none breed farther south than the eastern extremity of Maine. The western shores of Labrador, along an extent of about three hundred miles, afford the stations to which this species resorts during spring and summer; there it is abundant, and there it was that I studied its habits.

The farthest limits of the winter migrations of the young, so far as I have observed, are the middle portions of the eastern coast of the Floridas. While at St Augustine, in the winter of 1831, I saw several pairs keeping company with the young Brown Pelican, more as a matter of interest than of friendship, as they frequently chased them as if to force them to disgorge a portion of their earnings, acting much in the same manner as the Lestris does toward the smaller Gulls, but without any effect. They were extremely shy, alighted only on the outer edges of the outer sand-bars, and could not be approached, as they regularly walked off before my party the moment any of us moved towards them, until reaching the last projecting point, they flew off, and never stopped until out of sight. At what period they left that coast I am unable to say. Some are seen scattered along our sea-shores, from the Floridas to the Middle States, there being but few old birds among them; but the species does not become abundant until beyond the eastern extremities of the Connecticut and Long Island, when their number greatly increases the farther you proceed. On the whole of that extensive range, these birds are very shy and wary, and those which are procured are merely "chance shots." They seldom advance far up the bays, unless forced to do so by severe weather or heavy gales; and although I have seen this bird on our great lakes, I do not remember having ever observed an individual on any of our eastern rivers, at a distance from the sea, whereas the *Larus argentatus* is frequently found in such places.

Towards the commencement of summer, these wandering birds are seen abandoning the waters of the ocean to tarry for a while on the wild shores of Labrador, dreary and desolate to man, but to them delightful

as affording all that they can desire. One by one they arrive, the older individuals first. As they view from afar the land of their birth, that moment they emit their loud cries, with all the joy a traveller feels when approaching his loved home. The males sooner or later fall in with the females of their choice, and together they proceed to some secluded sand-bar, where they fill the air with their furious laughs until the rocks echo again. Should the student of nature happen to be a distant spectator of these meetings, he too must have much enjoyment. Each male bows, moves around his mate, and no doubt discloses to her the ardour of his love. Matters are managed to the satisfaction of all parties, yet day after day for a while, at the retreat of the waters, they meet as if by mutual agreement. Now you see them dressing their plumage, now partially expanding their wings to the sun; some lay themselves comfortably down on the sand, while others, supported by one foot, stand side by side. The waters again advance, and the Gulls all move off in search of food. At length the time has arrived; small parties of a few pairs fly towards the desert isles. Some remain in the nearest to prepare their nests, the rest proceed, until each pair has found a suitable retreat, and before a fortnight has elapsed, incubation has commenced.

The nest of this species is usually placed on the bare rock of some low island, sometimes beneath a projecting shelf, sometimes in a wide fissure. In Labrador it is formed of moss and seaweeds carefully arranged, and has a diameter of about two feet, being raised on the edges to the height of five or six inches, but seldom more than two inches thick in the centre, where feathers, dry grass, and other materials are added. The eggs are three, and in no instance have I found more. They are two inches and seven-eighths in length, by two inches and one-eighth in breadth, broadly ovate, rough but not granulated, of a pale earthy greenish-grey colour, irregularly blotched and spotted with brownish-black, dark umber, and dull purple. Like those of most other Gulls, they afford good eating. This species lays from the middle of May to that of June, and raises only one brood in the season. The birds never leave their eggs for any length of time, until the young make their appearance. Both sexes incubate, the sitting bird being supplied with food by the other. During the first week, the young are fed by having their supplies disgorged into their bill, but when they have attained some size, the food is dropped beside or before them. When they are approached by man, they walk with considerable speed towards some hiding place, or to the

nearest projecting ledge, beneath which they squat. When five or six weeks old, they take to the water, to ensure their escape, and swim with great buoyancy. If caught, they cry in the manner of their parents. On the 18th of June, several small ones were procured and placed on the deck of the Ripley, where they walked with ease and picked up the food thrown to them. As soon as one was about to swallow its portion, another would run up, seize it, tug at it, and if stronger, carry it off and devour it. On the 23d of that month, two individuals, several weeks old, and partly fledged, were also brought on board. Their notes, although feeble, perfectly resembled those of their parents. They ate greedily of every thing that was offered to them. When fatigued they sat with their tarsi placed on the ground and extended forward, in the manner of all the Herons, which gave them a very ludicrous appearance. Ere a month had elapsed, they appeared to have formed a complete acquaintance with the cook and several of the sailors, had become quite fat, and conducted themselves much like Vultures, for if a dead Duck, or even a Gull of their own species, were thrown to them, they would tear it in pieces, drink the blood, and swallow the flesh in large morsels, each trying to rob the others of what they had torn from the carcass. They never drank water, but not unfrequently washed the blood and filth from their bills, by immersing them and then shaking the head violently. These birds were fed until they were nearly able to fly. Now and then, the sailors would throw them overboard while we were in harbour. This seemed to gratify the birds as well as the sailors, for they would swim about, wash themselves, and dress their plumage, after which they would make for the sides, and would be taken on board. During a violent gale, one night, while we were at anchor in the harbour of Bras d'Or, our bark rolled heavily, and one of our pets went over the side and swam to the shore, where, after considerable search next day, it was found shivering by the lee of a rock. On being brought to its brothers, it was pleasant to see their mutual congratulations, which were extremely animated. Before we left the coast, they would sometimes fly of their own accord into the water to bathe, but could not return to the deck without assistance, although they endeavoured to do so. I had become much attached to them, and now and then thought they looked highly interesting, as they lay panting on their sides on the deck, although the thermometer did not rise above 55°. Their enmity to my son's pointer was quite remarkable, and as that animal was of a gentle and kindly disposition, they would

tease him, bite him, and drive him fairly from the deck into the cabin. A few days after leaving St George's Bay in Newfoundland, we were assailed by a violent gale, and obliged to lie-to. Next day one of the Gulls was washed overboard. It tried to reach the vessel again, but in vain; the gale continued; the sailors told me the bird was swimming towards the shore, which was not so far off as we could have wished, and which it probably reached in safety. The other was given to my friend Lieutenant GREEN of the United States Army, at Eastport in Maine. In one of his letters to me the following winter, he said that the young *Larus marinus* was quite a pet in the garrison, and doing very well, but that no perceptible change had taken place in its plumage.

On referring to my journal again, I find that while we were at anchor at the head of St George's Bay, the sailors caught many codlings, of which each of our young Gulls swallowed daily two, measuring from eight to ten inches in length. It was curious to see them after such a meal: the form of the fish could be traced along the neck, which for a while they were obliged to keep stretched out; they gaped and were evidently suffering; yet they would not throw up the fish. About the time the young of this species are nearly able to fly, they are killed in considerable numbers on their breeding grounds, skinned and salted for the settlers and resident fishermen of Labrador and Newfoundland, at which latter place I saw piles of them. When they are able to shift for themselves, their parents completely abandon them, and old and young go separately in search of food.

The flight of the Great Black-backed Gull is firm, steady, at times elegant, rather swift, and long protracted. While travelling, it usually flies at the height of fifty or sixty yards, and proceeds in a direct course, with easy regulated flappings. Should the weather prove tempestuous, this Gull, like most others, skims over the surface of the waters or the land within a few yards or even feet, meeting the gale, but not yielding to it, and forcing its way against the strongest wind. In calm weather and sunshine, at all seasons of the year, it is fond of soaring to a great height, where it flies about leisurely and with considerable elegance for half an hour or so, in the manner of eagles, vultures, and ravens. Now and then, while pursuing a bird of its own species, or trying to escape from an enemy, it passes through the air with rapid boundings, which, however, do not continue long, and as soon as they are over it rises and slowly sails in circles. When man encroaches on its domains, it keeps

over him at a safe distance, not sailing so much as moving to either side with continued flappings. To secure the fishes on which it more usually preys, it sweeps downwards with velocity, and as it glides over the spot, picks up its prey with its bill. If the fish be small, the Gull swallows it on wing, but if large, it either alights on the water, or flies to the nearest shore to devour it.

Although a comparatively silent bird for three-fourths of the year, the Great Black-backed Gull becomes very noisy at the approach of the breeding season, and continues so until the young are well fledged, after which it resumes its silence. Its common notes, when it is interrupted or surprised, sound like *cack, cack, cack*. While courting, they are softer and more lengthened, and resemble the syllables *cawah*, which are often repeated as it sails in circles or otherwise, within view of its mate or its place of abode.

This species walks well, moving firmly and with an air of importance. On the water it swims lightly but slowly, and may soon be overtaken by a boat. It has no power of diving, although at times, when searching for food along the shores, it will enter the water on seeing a crab or a lobster, to seize it, in which it at times succeeds. I saw one at Labrador plunge after a large crab in about two feet of water, when, after a tug, it hauled it ashore, where it devoured it in my sight. I watched its movements with a glass, and could easily observe how it tore the crab to pieces, swallowed its body, leaving the shell and the claws, after which it flew off to its young and disgorged before them.

It is extremely voracious, and devours all sorts of food excepting vegetables, even the most putrid carrion, but prefers fresh fish, young birds, or small quadrupeds, whenever they can be procured. It sucks the eggs of every bird it can find, thus destroying great numbers of them, as well as the parents, if weak or helpless. I have frequently seen these Gulls attack a flock of young Ducks while swimming beside their mother, when the latter, if small, would have to take to wing, and the former would all dive, but were often caught on rising to the surface, unless they happened to be among rushes. The Eider Duck is the only one of the tribe that risks her life, on such occasions, to save that of her young. She will frequently rise from the water, as her brood disappear beneath, and keep the Gull at bay, or harass it until her little ones are safe under some shelving rocks, when she flies off in another direction, leaving the enemy to digest his disappointment. But while the poor Duck is sitting on her

eggs in any open situation, the marauder assails her, and forces her off, when he sucks the eggs in her very sight. Young Grouse are also the prey of this Gull, which chases them over the moss-covered rocks, and devours them before their parents. It follows the shoals of fishes for hours at a time, and usually with great success. On the coast of Labrador, I frequently saw these birds seize flounders on the edges of the shallows; they often attempted to swallow them whole, but, finding this impracticable, removed to some rock, beat them, and tore them to pieces. They appear to digest feathers, bones, and other hard substances with ease, seldom disgorging their food, unless for the purpose of feeding their young or mates, or when wounded and approached by man, or when pursued by some bird of greater power. While at Boston in Massachusetts, one cold winter morning, I saw one of these Gulls take up an eel, about fifteen or eighteen inches in length, from a mud bank. The Gull rose with difficulty, and after some trouble managed to gulp the head of the fish, and flew towards the shore with it, when a White-headed Eagle made its appearance, and soon overtook the Gull, which reluctantly gave up the eel, on which the Eagle glided towards it, and, seizing it with its talons, before it reached the water, carried it off.

This Gull is excessively shy and vigilant, so that even at Labrador we found it difficult to procure it, nor did we succeed in obtaining more than about a dozen old birds, and that only by stratagem. They watched our movements with so much care as never to fly past a rock behind which one of the party might be likely to lie concealed. None were shot near the nests when they were sitting on their eggs, and only one female attempted to rescue her young, and was shot as she accidentally flew within distance. The time to surprise them was during violent gales, for then they flew close to the tops of the highest rocks, where we took care to conceal ourselves for the purpose. When we approached the rocky islets on which they bred, they left the place as soon as they became aware of our intentions, cackled and barked loudly, and when we returned, followed us at a distance more than a mile.

They begin to moult early in July. In the beginning of August the young were seen searching for food by themselves, and even far apart. By the 12th of that month they had all left Labrador. We saw them afterwards along the coast of Newfoundland, and while crossing the Gulf of St Lawrence, and found them over the bays of Nova Scotia, as we proceeded southward. When old, their flesh is tough and unfit for food.

Their feathers are elastic, and good for pillows and such purposes, but can rarely be procured in sufficient quantity.

The most remarkable circumstance relative to these birds is, that they either associate with another species, giving rise to a hybrid brood, or that when very old they lose the dark colour of the back, which is then of the same tint as that of the *Larus argentatus*, or even lighter. This curious fact was also remarked by the young gentlemen who accompanied me to Labrador ; and although it is impossible for me to clear up the doubts that may be naturally entertained on this subject, whichever of the two suppositions is adopted, the fact may yet be established and accounted for by persons who may have better opportunities of watching them and studying their habits. No individuals of *Larus argentatus* were, to my knowledge, seen on that coast during the three months which I passed there, and the fishermen told us that the " saddle-backs were the only large Gulls that ever breed there."

This bird must be of extraordinary longevity, as I have seen one that was kept in a state of captivity more than thirty years. The following very interesting account of the habits of a partially domesticated individual I owe to my esteemed and learned friend Dr NEILL of Edinburgh.

" In the course of the summer of 1818, a " big scorie" was brought to me by a Newhaven fisher-boy, who mentioned that it had been picked up at sea, about the mouth of the Frith of Forth. The bird was not then fully fledged : it was quite uninjured : it quickly learned to feed on potatoes and kitchen refuse, along with some ducks ; and it soon became more familiar than they, often peeping in at the kitchen window in hopes of getting a bit of fat meat, which it relished highly. It used to follow my servant PEGGY OLIVER about the doors, expanding its wings and vociferating for food. After two moults I was agreeably surprised to find it assuming the dark plumage of the back, and the shape and colour of the bill of the *Larus marinus*, or Great Black-backed Gull ; for I had hitherto regarded it as merely a large specimen of the Lesser Black-backed (*L. fuscus*), a pair of which I then possessed, but which had never allowed the new comer to associate with them. The bird being perfectly tame, we did not take the precaution of keeping the quills of one wing cut short, so as to prevent flight ; indeed, as it was often praised as a remarkably large and noble looking Sea-maw, we did not like to disfigure it. In the winter 1821-2, it got a companion in a cock-heron, which had been wounded in Coldinghame Muir, brought to Edinburgh alive, and

kept for some weeks in a cellar in the old College, and then presented to me by the late Mr JOHN WILSON, the janitor,—a person remarkably distinguished for his attachment to natural history pursuits. This Heron we succeeded in taming completely, and it still (1835) remains with me, having the whole garden to range in, the trees to roost upon, and access to the Loch at pleasure, the loch being the boundary of my garden. Some time in the spring of 1822, the large Gull was amissing; and we ascertained (in some way that has now escaped my memory) that it had not been stolen, nor killed, as we at first supposed, but had taken flight, passing northwards over the village, and had probably therefore gone to sea. Of course I gave up all expectation of ever hearing more of it. It was not without surprise, therefore, that on going home one day in the end of October of that year, I heard my servant calling out with great exultation, “Sir, Big Gull is come back!” I accordingly found him walking about in his old haunts in the garden, in company with, and recognising (as I am firmly persuaded) his old friend the Heron. He disappeared in the evening, and returned in the morning, for several days; when PEGGY OLIVER thought it best to secure him. He evidently did not like confinement, and it was concerted that he should be allowed his liberty, although he ran much risk of being shot on the mill-pond by youthful sportsmen from Edinburgh. After this temporary captivity, he was more cautious and shy than formerly; but still he made almost daily visits to the garden, and picked up herrings or other food laid down for him. In the beginning of March 1823 his visits ceased; and we saw no more of him till late in the autumn of that year. These winter visits to Canonmills, and summer excursions to the unknown breeding-place, were continued for years with great uniformity: only I remarked that after the Gull lost his protectress, who died in 1826*, he became more distant in his manners. In my note-book, under date of 26th October 1829, I find this entry: ‘Old PEGGY’s Great Black-backed Gull arrived at the pond this morning, the seventh (or eighth) winter he has regularly returned. He had a scorie with him, which was soon shot on the loch, by some cockney sportsman.’ The young bird, doubtless

* “PEGGY OLIVER was remarkable for the zeal and taste she displayed in the domesticating of uncommon animals, as well as in the culture of plants: her expertness in the latter department is noticed and praised by Mr LONDON in his *Gardener’s Magazine*. Her funeral was attended by some of the most distinguished naturalists here, and, among others, by your friend Dr MACCULLOCH of Pictou, who happened to be in Edinburgh at the time, and whose friendship I have also the happiness to enjoy.”

one of his offspring, had its wing shattered, and continued alive in the middle of the pond, occasionally screaming piteously, for two or three days, till relieved by death. The old Gull immediately abandoned the place for that winter, as if reproaching us for cruelty. By next autumn, however, he seemed to have forgotten the injury ; for, according to my record, ‘ 30th October 1830. The Great Black-backed Gull once more arrived at Canonmills garden.’ The periods of arrival, residence, and departure were nearly similar in the following year. But in 1832, not only October, but the months of November and December passed away without Gull’s making his appearance, and I of course despaired of again seeing him. He did, however, at length arrive. The following is the entry in my common-place book : ‘ Sunday, 6th January 1833. This day the Great Black-back returned to the mill-pond, for (I think) the eleventh season. He used to re-appear in October in former years, and I concluded him dead or shot. He recognised my voice, and hovered over my head.’ He disappeared early in March as usual, and re-appeared at Canonmills on 23d December 1833, being a fortnight earlier than the date of his arrival in the preceding season, but six weeks later than the original period of re-appearance. He left in the beginning of March as usual, and I find from my notes that he “ reappeared on 30th December 1834 for the season, first hovering around and then alighting on the pond as in former years.’ The latest entry is, ‘ 11th March 1835 : The Black-backed Gull was here yesterday, but has not been seen to-day ; nor do I expect to see him till November.’

“ This Gull has often attracted the attention of persons passing the village of Canonmills, by reason of its sweeping along so low or near the ground, and on account of the wide expanse of wing which it thus displays. It is well known to the boys of the village as “ NEILL’S Gull,” and has, I am aware, owed its safety more than once to their interference, in informing passing sportsmen of its history. When it first arrives in the autumn, it is in the regular habit of making many circular sweeps around the pond and garden, at a considerable elevation, as if reconnoitring ; it then gradually lowers its flight, and gently alights about the centre of the pond. Upon the gardener’s mounting the garden-wall with a fish in his hand, the Gull moves towards the overhanging spray of some large willow-trees, so as to catch what may be thrown to him, before it sinks in the water. There can be no doubt whatever of the identity of the bird : Indeed, he unequivocally shews that he recognises my

voice when I call aloud 'Gull, Gull;' for whether he be on wing or afloat, he immediately approaches me.

"A few pairs of the Great Black-backed Gull breed at the Bass Rock yearly, and it seems highly probable that my specimen had originally been hatched there. If I may be allowed a conjecture, I would suppose that, after attaining maturity, he for some years resorted to the same spot for the purpose of breeding; but that of late years, having lost his mate or encountered some other disaster, he has extended his migration for that purpose to some very distant locality, which has rendered his return to winter quarters six weeks later than formerly."

LARUS MARINUS, Linn. Syst. Nat. vol. i. p. 225.—*Lath. Ind. Ornith.* vol. ii. p. 813.—

Ch. Bonaparte, Synopsis of Birds of the United States, p. 362.

BLACK-BACKED GULL, or COBB, *Nuttall*, Manual, vol. ii. p. 308.

Adult Male in Summer. Plate CCXLI.

Bill shorter than the head, robust, compressed, higher near the end than at the base. Upper mandible with the dorsal line nearly straight at the base, declinate and arched towards the end, the ridge convex, the sides slightly convex, the edges sharp, inflected, arcuate-declinate towards the end, the tip rather obtuse. Nasal groove rather long and narrow; nostril in its fore part, lateral, longitudinal, linear, wider anteriorly, pervious. Lower mandible with the angle long and narrow, the outline of the crura rather concave, as is that of the remaining part of the mandible, a prominent angle being formed at their meeting, the sides nearly flat, the edges sharp and inflected.

Head rather large, oblong, narrowed anteriorly. Neck of moderate length, strong. Body full. Wings long. Feet of moderate length, rather slender; tibia bare below; tarsus somewhat compressed, covered anteriorly with numerous scutella, laterally with angular scales, behind with numerous small oblong scales; hind toe very small and elevated, the fore toes of moderate length, rather slender, the fourth longer than the second, the third longest, all scutellate above, and connected by reticulated entire membranes, the lateral toes margined externally with a narrow membrane. Claws small, slightly arched, depressed, rounded, that of middle toe with an expanded inner margin.

The plumage in general is close, full, elastic, very soft and blended, on the back rather compact. Wings very long, broad, acute, the first

quill longest, the second scarcely shorter, the rest of the primaries rather rapidly graduated ; secondaries broad and rounded, the inner narrower. Tail of moderate length, even, of twelve rounded feathers.

Bill gamboge-yellow, the lower mandible bright carmine towards the end. Edges of eyelids bright carmine, iris silvery. Feet yellow, claws black. The head, neck, and all the lower parts, pure white ; back and wings deep blackish-grey tinged with purple, or dark slate-colour ; the rump and tail white, as are the edges of the wing, and a large portion of the extremities of all the quills ; the second, third, fourth, and fifth primaries have a broad band of black across their ends, the inner web only of the second being so marked, in some specimens however both webs. The œsophagus is very large, the gizzard small, the intestine four feet long, and about the thickness of a goose quill.

Length to end of tail $29\frac{1}{4}$ inches, to end of wings $31\frac{1}{2}$, to end of claws $29\frac{1}{4}$; extent of wings 67 ; wing from flexure 20 ; tail 9 ; bill along the ridge $2\frac{1}{2}$, along the edge of lower mandible $3\frac{1}{2}$; its depth at the angle 1, at the base $\frac{1}{2}$; tarsus $3\frac{1}{2}$; middle toe $2\frac{1}{2}$, its claw $\frac{1}{2}$. Weight 3 lb.

The Female is similar to the Male, but considerably less.

The Young when fledged have the bill brownish-black, the iris dark brown, the feet as in the adult. The head and neck are greyish-white, streaked with pale brownish-grey ; the upper parts mottled with brownish-black, brownish-grey, and dull white, the rump paler. The primary quills blackish-brown, slightly tipped with brownish-white ; the tail-feathers white, with a large brownish-black patch towards the end, larger on the middle feathers, which are also barred towards the base with dusky. The lower parts are greyish-white, the sides and lower tail-coverts obscurely mottled with greyish-brown.

THE SNOWY HERON.

ARDEA CANDIDISSIMA, GMEL.

PLATE CCXLII. MALE.

THIS beautiful species is a constant resident in Florida and Louisiana, where thousands are seen during winter, and where many remain during the breeding season. It is perhaps of a still more delicate constitution than the Blue Heron, *Ardea cærulea*, as no individuals remain in the neighbourhood of Charleston when the winter happens to be rather colder than usual. In its migrations eastward it rarely proceeds farther than Long Island in the State of New York; few are seen in Massachusetts, and none farther to the east. My friend Professor MACCULLOCH never heard of it in Nova Scotia, and I cannot imagine on what authority WILSON stated that it inhabits the sea-coast of North America to the Gulf of St Lawrence. My friend NUTTALL also asserts, without mentioning on what evidence, that, by pursuing an inland course, it reaches its final destination in the wilds of Canada. It has not been observed in any part of the western country; nay, it rarely ascends the Mississippi as high as Memphis, or about two hundred miles from the mouth of the Ohio, and cannot be said to be at all abundant much farther up the great river than Natchez. In fact, the maritime districts furnish its favourite places of resort, and it rarely proceeds farther inland than fifty or sixty miles, even in the flat portions of the Carolinas, but even in the Middle States, where it prefers the islands along the Atlantic coast.

While I was at Charleston, in March 1831, few had arrived from the Floridas by the 18th of that month, but on the 25th thousands were seen in the marshes and rice fields, all in full plumage. They reach the shores of New Jersey about the first week of May, when they may be seen on all parts of the coast between that district and the Gulf of Mexico. On the Mississippi, they seldom reach the low grounds about Natchez, where they also breed, earlier than the period at which they appear in the Middle States.

While migrating, they fly both by night and by day, in loose flocks of from twenty to a hundred individuals, sometimes arranging themselves in a broad front, then forming lines, and again proceeding in a straggling

manner. They keep perfectly silent, and move at a height seldom exceeding a hundred yards. Their flight is light, undetermined as it were, yet well sustained, and performed by regular flappings, as in other birds of the tribe. When they have arrived at their destination, they often go to considerable distances to feed during the day, regularly returning at the approach of night to their roosts on the low trees and bushes bordering the marshes, swamps, and ponds. They are very gentle at this season, and at all periods keep in flocks when not disturbed. At the approach of the breeding season, many spend a great part of the day at their roosting places, perched on the low trees principally growing in the water, when every now and then they utter a rough guttural sort of sigh, raising at the same moment their beautiful crest and loose recurved plumes, curving the neck, and rising on their legs to their full height, as if about to strut on the branches. They act in the same manner while on the ground mating. Then the male, with great ardour, and with the most graceful motions, passes and repasses for several minutes at a time before and around the female, whose actions are similar, although she displays less ardour. When disturbed on such occasions, they rise high in the air, sail about and over the spot in perfect silence, awaiting the departure of the intruder, then sweep along, exhibiting the most singular movements, now and then tumbling over and over like the Tumbler Pigeon, and at length alight on a tree. On the contrary, when you intrude upon them while breeding, they rise silently on wing, alight on the trees near, and remain there until you depart.

The Snowy Herons breed in large communities; and so very social are they, that they do not appear even to attempt to disturb such other birds as are wont to breed among them, the Night Herons, for instance, the Green Herons, or the Boat-tailed Grakles. I have visited some of their breeding grounds, where several hundred pairs were to be seen, and several nests were placed on the branches of the same bush, so low at times that I could easily see into them, although others were situated at a height of ten or fifteen feet. In places where these birds are often disturbed, they breed in taller trees, though rarely on very high ones. In the Floridas I found their nests on low mangroves; but wherever they are placed you find them fronting the water, over which, indeed, these Herons seem fond of placing them. The nest, which is formed of dry sticks, is rather small, and has a shallow cavity. The eggs are three, one inch and five-eighths and a half in length, one and a quarter across, of a broadly ellip-

tical form, and having a plain pale bluish-green colour. In the Middle Districts, the usual time of laying is about the middle of May; in the Carolinas a month sooner; and in the Floridas still earlier, as there, on the 19th of May, I found the young in great numbers walking off their nests on the mangrove branches, and, like those of the Louisiana Heron, which also breeds in the same places, trying to escape by falling into the water below, and swimming in search of hiding-places among the roots and hanging branches. Both sexes incubate. Many of the eggs are destroyed by Crows and Turkey Buzzards, which also devour the young, and many are carried off by men.

The young acquire the full beauty of their plumage in the course of the first spring, when they can no longer be distinguished from the old birds. The legs and feet are at first of a darkish olive, as is the bill, except at the base, where it is lighter, and inclining to yellow. At the approach of autumn, the crest assumes a form, and the feathers of the lower parts of the neck in front become considerably lengthened, the feet acquire a yellow tint, and the legs are marked with black on a yellowish ground; but the flowing feathers of the back do not appear until the approach of spring, when they grow rapidly, become recurved, and remain until the young are hatched, when they fall off.

The Snowy Heron, while in the Carolinas, in the month of April, resorts to the borders of the salt-water marshes, and feeds principally on shrimps. Many individuals which I opened there contained nothing else in their stomach. On the Mississippi, at the time when the shrimps are ascending the stream, these birds are frequently seen standing on floating logs, busily engaged in picking them up; and on such occasions their pure white colour renders them conspicuous and highly pleasing to the eye. At a later period, they feed on small fry, fiddlers, snails, aquatic insects, occasionally small lizards and young frogs. Their motions are generally quick and elegant, and, while pursuing small fishes, they run swiftly through the shallows, throwing up their wings. Twenty or thirty seen at once along the margins of a marsh or a river, while engaged in procuring their food, form a most agreeable sight. In autumn and early spring, they are fond of resorting to the ditches of the rice fields, not unfrequently in company with the Blue Herons. When, on being wounded in the wing one falls into the water, it swims off towards the nearest shore, and runs to hide itself by the side of some log, or towards a tree which if possible it climbs, ascending to its very top. When seized, they

peck at you with great spirit, and are capable of inflicting a severe wound.

There is no difference between the sexes as to plumage, but the male is somewhat larger. When in good condition, its flesh is excellent eating, especially in early autumn, when it is generally very fat. Some may be seen for sale in the markets of New Orleans and other southern cities. They return southward from the Middle Districts early in October, but in the Carolinas they remain until the first frosts, when they all depart for the Floridas, where I found them during the whole winter in considerable numbers, associating with the Blue Herons.

ARDEA CANDIDISSIMA, Ch. Bonaparte, Synops. of Birds of the United States, p. 305.

SNOWY HERON, *ARDEA CANDIDISSIMA*, Wils. Amer. Ornith. vol. vii. p. 120. pl. 62.

fig. 4.—Nuttall, Manual, vol. ii. p. 49.

Adult Male in full spring plumage. Plate CCXLII.

Bill longer than the head, straight, compressed, tapering to a point, the mandibles nearly equal. Upper mandible with the dorsal line nearly straight, the ridge broad and slightly convex at the base, narrowed towards the end, a groove from the base to two-thirds of its length, beneath which the sides are convex, the edges thin and sharp, with a slight notch close to the very acute tip. Nostrils basal, linear, longitudinal, with a membrane above and behind. Lower mandible with the angle extremely narrow and elongated, the dorsal line beyond it ascending and almost straight, the edges sharp and slightly inflected, the tip acuminate.

Head rather small, oblong, compressed. Neck very long and slender. Body slender and compressed. Feet very long; tibia elongated, its lower half bare, very slender, covered all round with angular scales, of which the posterior are scutelliform; tarsus elongated, slender, compressed, anteriorly covered with numerous scutella, laterally and behind with angular scales. Toes of moderate length, rather slender, scutellate above, reticularly granulate beneath; third toe much longer than second, which is very little shorter than fourth, the hind toe much shorter but strong. Claws rather small, arched, compressed, acute, that of hind toe much larger, the inner edge of that of the third regularly pectinate.

Space between the bill and eye, and around the latter, bare, as is the lower half of the tibia. Plumage soft and blended. Feathers of the upper and hind part of the head, very long, loose, decurved; of the sides,

and especially of the lower part of the neck, also much elongated; of the middle of the back very long, loose, and hanging over the sides and rump, but with their extremities recurved. Wings of moderate length; primaries tapering and rounded, the third longest, the second very little shorter, first and fourth about equal; secondaries broad and rounded, some of the inner as long as the longest primaries, when the wing is closed. Tail very short, small, slightly rounded, of twelve rather weak feathers.

Bill black, the bare space at its base yellow. Iris and edges of eyelids yellow. Tibia and tarsus black, the lower part of the latter behind and the toes bright yellow; claws bluish black. The plumage is pure white.

Length to end of tail $22\frac{1}{2}$ inches, to end of wings 23, to end of claws $30\frac{1}{4}$; extent of wings 38; wing from flexure $10\frac{1}{2}$; tail 3; loose feathers $1\frac{1}{2}$ beyond the tail; bill along the ridge $3\frac{2}{7}$; along the edge of lower mandible $3\frac{3}{4}$; bare part of tibia $2\frac{1}{2}$; tarsus $3\frac{1}{2}$; middle toe $2\frac{1}{2}$, its claw $\frac{4}{17}$. Weight 12 oz.

THE AMERICAN SNIPE.

SCOLOPAX WILSONII, TEMM.

PLATE CCXLIII. MALE, FEMALE, AND YOUNG IN AUTUMN.

THE summer range of the Common American Snipe extends northward to a considerable distance beyond the limits of the United States. During the breeding season it is not to be found in our Southern Districts, much less does it breed on the borders of the Mississippi, as has been alleged by some writers. It may indeed sometimes happen that a pair is found during summer in the mountainous districts of the Carolinas; but occurrences of this kind are rare, and are probably caused by one of the birds being disabled, and so prevented from prosecuting its journey farther northward, although not incapacitated for reproduction. Some pairs are more frequently met with in Virginia, Maryland and Pennsylvania, either with eggs or with young, but the great body of this species goes farther north for the purpose of breeding. In the State of Maine, they become tolerably abundant at this season, and as you proceed eastward you find them more numerous. In Nova Scotia they are plentiful during summer, and there they breed in all convenient places.

In these northern districts, the Snipe begins to lay its eggs in the early part of June. The swampy parts of the extensive moss-covered marshes in elevated situations afford it places of security and comfort, in which it is not likely to be disturbed by man, and finds immediately around it an abundance of food. The nest itself is a mere hollow in the moss, scantily inlaid with a few grasses. The eggs, which, like those of many of the *Tringas*, are four, and placed with the small ends together, measure one inch and five-eighths by one and one-eighth, being pyriform, with the tip somewhat inflated. The ground colour is a yellowish-olive, pretty thickly spotted and blotched with light and dark umber, the markings increasing in size as they approach the large end, where they form a circle. The young, like those of the Woodcock, leave the nests as soon as hatched, and so resemble those of the Common Snipe of Europe, *Scolopax Galinago*, that the same description answers for both, they being covered with down of different tints of brown and greyish-yellow. The bill is at this age short, very soft and easily bent by the least pressure; nor does it

acquire its full growth before winter, and its length differs in different apparently full grown individuals, by half an inch or even three-fourths. They seem to feed at first on minute insects collected on the surface of the mires, or amid the grass and moss; but as they grow older, and the bill becomes firmer and larger, they probe the ground like their parents, and soon become expert at this operation, introducing the bill at every half inch or so of the oozy mire, from which they principally obtain their food.' In the Middle States, this Snipe, however, has been found breeding in meadows, as well as in the State of Maine; and it also nestles in the mountainous districts of these parts of the Union. I never had the good fortune to meet with a nest in Pennsylvania, although I have known several instances of a pair breeding not far from Mill Grove on the Perkioming.

In the Western Country this bird arrives from the north early in October, alighting in the low meadows watered by warm springs, and along the borders of ponds and small secluded rivulets, sometimes in the corn fields after a continuance of rainy weather, but never in the woods or any place from which it cannot easily make its escape when approached. In Kentucky it often remains all winter, and is at times very abundant. Farther south, it is more plentiful, especially in the lower parts of Louisiana, where it is named "*cache cache*" by the Creoles, and over the whole country between that State and the Carolinas. During winter, it is not uncommon in Louisiana to meet with it in flocks of considerable numbers, as is also the case in South Carolina, where the grounds of the rice-planter afford it abundance of food. In some fields well known to my Charleston friends, as winter retreats of the snipe, it is shot in great numbers. At times it is so much less careful about concealing itself than at others, that it is not at all uncommon to see it walking about over its wet feeding-grounds, and on such occasions many are killed. In such places I have found these birds by fifties and hundreds in fields of a few acres. At the first shots, dozens in succession would take to wing, each emitting its cry of *wau-aik*, after which they would rise in the air, gradually collect, fly round a few times to the distance of some hundred yards, and returning pitch towards the ground, and alight, with the velocity of an arrow, not many yards from the spot where they had previously been. In a few minutes they would all disperse, to seek for food. So much are they at times attached to particular spots, that the sportsmen continue to shoot them until their number is reduced to a few, which

having perhaps been several times shot at, become extremely wary, and are left to entice others to join them, so that another day's sport may be obtained. It is not rare to find some of these birds in the immediate vicinity of Charleston, when they are pursued by the younger gunners, and sometimes by keen sportsmen. I have known eight or ten procured by one person in a short time, between that city and the race-ground, which is scarcely a mile distant. They are also abundant in the wet savannahs in the Floridas, from which they retire a few weeks earlier than from Louisiana and the Carolinas, where some remain until the beginning of April. During the whole of the winter months, these birds are observed to ramble from one place to another, and a field which yesterday contained a good number, has only a few to-day, and to-morrow may be quite deserted. But before the end of a week, there you will find them again, as abundant as at first. They rarely visit salt waters, and never resort to the interior of the woods.

The flight of the Snipe while travelling to some distance, is performed at a considerable elevation, by regular and quickly repeated beats of the wings. Yet they do not appear as if pursuing a direct course, for every now and then they deviate a little to either side. They pass over rapidly, however, and are able to travel to a great distance in a short time. Their migrations, although performed singly, or in small parties of a single family, may be said to be in a manner continuous, as in the course of a few days a whole section of country, in which none had been seen for several months, becomes well supplied with them. When surprised by the sportsman, or any other enemy, they usually rise at one spring, dash through the air in a zigzag course, a few feet from the ground, emit their cry when about twenty yards distant, and at times continue to employ this cunning mode of escape for sixty or seventy yards, after which they mount into the air, and perform the rounds already described. I have found the instant at which they utter their note of alarm the best for pulling the trigger; but almost every sportsman has his peculiar fancy, and many are glad to kill them the best way they can; for he who shoots thirty snipes in succession, without missing one, is a good hand at any kind of shooting. Sometimes the Snipe will squat with great pertinacity, and even stand a pointer, while at other times it will not suffer either man or dog to approach within fifty yards of it. This, however, depends much on the state of the atmosphere. The finer and warmer the day, the easier I have found it to get near them, and the smaller is the distance at which

they realight ; whereas during drizzly weather, they fly off to a great distance. When the Snipe alights within sight, and you are concealed and silent, its movements can easily be observed. It first stands for an instant in a half crouching attitude, as if to listen, then raises itself and runs a few steps, when, if it be in any degree apprehensive of danger, it squats, and there remains until put up. If all around is quiet, you see it move in its ordinary manner, walking lightly, and with some grace, its bill half inclined downwards, in search of a good spot to probe for food. The instant it meets with this it sets to work, and thrusts its bill into the mud or the damp soil, to a depth determined by the degree of softness of the ground, repeating its thrusts eight, ten, or more times in quick succession. When it has thus examined a spot, and perhaps found some food, it walks off in search of another, and thus continues until it is satisfied, when it generally lays itself down in a soft tuft of grass until the approach of night, when it flies off and rambles about for exercise in comparative security. When wounded, it runs with moderate speed, but, if closely pursued, squats whenever a good opportunity occurs. It will at times continue to run for fifty or more yards, after which, if you have not a good dog, it is next to impossible to find it, for on such occasions it remains perfectly silent. While travelling eastward from Charleston, in the month of March, I found this Snipe perhaps more abundant near the Great Santie River than any where else. We could see them with ease from the carriage as they were walking over the rice fields, as if in perfect assurance of security.

The food of our Common Snipe consists principally of ground worms, insects, and the juicy slender roots of different vegetables, all of which tend to give its flesh that richness of flavour and juicy tenderness, for which it is so deservedly renowned, it being equal to that of the woodcock. Many epicures eat up both Snipe and Woodcock with all their viscera, worms and insects to boot, the intestines in fact being considered the most savoury parts. On opening some newly killed Snipes, I have more than once found fine large and well-fed ground worms, and at times a leech, which I must acknowledge I never conceived suitable articles of food for man, and, for this reason, I have always taken good care to have both Snipes and Woodcocks well cleaned, as all game ought to be.

To WILSON is due the merit of having first shewn the difference between this bird and the Common Snipe of Europe ; and it is honourable for the ornithologists of that region of the globe to have dedicated our

species to so zealous and successful a student of nature. I have, however, been surprised that he should not have mentioned the difference in the notes of the two species, which in fact is as great as that between those of the American Crow and the Carrion Crow of Europe. A decided difference of this kind I am always disposed to consider as satisfactory in the case of nearly allied species. While glancing over some of the numberless compilations that are pouring their muddy waters into the great stream of human knowledge, I was somewhat surprised to find in one of them an account of the American Snipe, in which it is stated that it is a *winter* visitant in the *northern* States, and will most probably breed farther *south*, without leaving the country !

The American Snipe is easily caught in snares placed on the spots of mud which it is wont to probe, and a good number are thus obtained by the farmers' children, especially during very cold weather, when, the birds having become emaciated from want of a good supply of food, they resort to the small warm springs of our meadows, and there remain until the return of milder weather. At such times and places, I have heard this bird utter various curious notes, which I am unable to describe, putting themselves into strange postures all the while, jerking their tails upwards, downwards, and sideways, for several seconds at a time, while the head and neck were moved backwards and forwards, as if the bird had been in a fit. I never saw this during warm weather, and am unable to account for it.

It arrives in Pennsylvania from the south about the middle of March, earlier or later according to the nature of the season, a month later in Maine, and about a week or ten days after in Nova Scotia. We neither saw nor heard of any in Newfoundland or Labrador, but they are abundant in the interior of the northern parts of the Canadas.

The young acquire the full plumage of the adult the first year after their birth, when no essential difference is perceptible between the sexes, the female being merely somewhat larger than the male. My friend THOMAS MACCULLOCH, who has not unfrequently found this bird breeding, and from whom I have received many of its eggs, was unable to say whether both sexes incubate, although this is very probable, as the male is often seen with or near the female while she is sitting, excepting towards evening or in the early part of the morning, when he mounts into the air, as if for the purpose of congratulating her by his curious song. It often happens that before these birds depart in spring, many are already mated. The

birds are then met with in meadows or on low grounds, and, by being on the spot before sunrise, you may see both mount high in the air in a spiral manner, now with continuous beats of the wings, now in short sailings, until more than a hundred yards high, when they whirl round each other with extreme velocity, and dance as it were to their own music; for at this juncture, and during the space of five or six minutes, you hear rolling notes mingling together, each more or less distinct, perhaps according to the state of the atmosphere. The sounds produced are extremely pleasing, though they fall faintly on the ear. I know not how to describe them, but I am well assured that they are not produced simply by the beatings of the wings, as at this time the wings are not flapped, but are used in sailing swiftly in a circle not many feet in diameter. A person might cause a sound somewhat similar by blowing rapidly and alternately from one end to another, across a set of small pipes consisting of two or three modulations. This performance is kept up until incubation terminates, but I never observed it at any other period. Our Woodcock produces a somewhat similar sound at the same season, and also at times on fine autumnal evenings, as I shall mention more particularly when describing that bird.

In confinement, our Common Snipe feeds freely on moistened Indian corn meal, mixed with some insects, but rarely becomes as gentle as the Woodcock in similar circumstances. When approached, it droops its wings and runs round its place of confinement, even should it be a small room, keeping its tail spread out on the side next you. If the bird is confined in a small space in front of you, it alternately throws the tail upwards, and spreads it in the manner mentioned at every successive turn to and from each corner. Sometimes it emits a lisping sound, but is more usually silent.

SCOLOPAX WILSONII, Ch. Bonaparte, Synops. of Birds of the United States, p. 330.—

Swains. and Richards. Fauna-Bor. Amer. part ii. p. 401.

SNIPE, *SCOLOPAX GALLINAGO*, Wils. Amer. Ornith. vol. vi. p. 18. pl. 47. fig. 1.

WILSON'S SNIPE, *Nuttall*, Manual, vol. ii. p. 185.

Adult Male. Plate CCXLIII. Fig. 1.

Bill twice as long as the head, subulate, straight, compressed for more than half its length, depressed towards the end. Upper mandible with the dorsal line straight, the ridge for a short space at the base flattish, then convex, towards the end flattened, the sides with a narrow groove

extending to near the tip, which is obtuse and probe-like, the edges soft and obtuse. Nostrils basal, linear, very small. Lower mandible with the angle extremely long and narrow, the sides nearly erect, with a groove having several bars across it; the end of both mandibles covered, after death, with numerous prominences, or rather with reticular depressions, leaving small prominences between them.

Head rather small, oblong, narrowed anteriorly, the forehead elevated and rounded. Neck rather short. Body rather full. Legs of moderate length, slender; tibia bare below, scutellate before and behind; tarsus with numerous scutella before, smaller ones behind, and reticulated sides; toes very slender, free, scutellate above, narrow and slightly margined beneath; first very small, third longer than the tarsus, fourth much shorter, but considerably longer than second. Claws slightly arched, extremely compressed, very acute, that of the third toe largest.

Plumage very soft, rather full, blended, on the fore part of the head very short. Wings of moderate length, narrow, sharp; primaries broad, tapering, but rounded, the first extremely small and pointed, the second longest, the third very little shorter, the rest rapidly graduated; secondaries broad, short, incurved, rounded, the inner very long, tapering, as are the scapulars. Tail short, rounded, of sixteen rounded feathers.

Bill brown, the granulated part towards the tip black. Iris hazel. Feet bluish-grey, claws dusky. On the upper part of the head two brownish-black longitudinal broad bands, separated by a narrower central pale brown one, and with another pale brown band on each side from the bill over the eye; then a loreal band of dark brown; chin whitish; neck pale reddish-brown, spotted with brownish-black. The general colour of the upper parts is brownish-black, variegated with pale reddish-brown, of which latter colour are the outer edges of the scapulars and of the lateral feathers on the anterior part of the back. Wing-coverts and inner secondaries similarly mottled, the smaller anterior coverts, the primary coverts, primary quills, and outer secondaries deep brown, more or less tipped with white; first quill white, dusky in the centre, second with the outer edge brownish-white; rump barred with yellowish-grey and dusky; upper tail-coverts similar, but the larger barred with brownish-red and black. Tail-feathers brownish-black at the base, with a broad subterminal band of brownish-red on the outer web of the two middle, and on both webs of the rest, excepting the outer on each side, which is barred with brownish-black and white, the black bars five; the tips of all white. Anterior part

of breast like the neck, the rest white; abdomen and lower tail-coverts greyish-yellow, barred with brownish-black, as are the sides; scapulars white, barred with greyish-black; lower wing-coverts similarly mottled.

Length to end of tail $10\frac{1}{2}$ inches, to end of claw $11\frac{1}{2}$; extent of wings 17; wing from flexure 5; tail $2\frac{1}{4}$; bill along the back $2\frac{7}{8}$, along the edge of lower mandible $2\frac{5}{8}$; tarsus $1\frac{2}{8}$, middle toe $1\frac{1}{4}$, its claw $\frac{4}{8}$. Weight 3 oz.

Adult Female. Plate CCXLIII. Fig. 2.

The Female resembles the Male, but is rather larger.

Autumnal plumage, Plate CCXLIII. Fig 3.

The young in autumn resemble the old birds, but have the dark markings of a browner tint, the light more dingy, and the colours in general less pure.

THE COMMON GALLINULE.

GALLINULA CHLOROPUS, LATH.

PLATE CCXLIV. MALE.

THE two species of Gallinule which occur in the United States are confined within a comparatively small range in that extensive country, the southern portions of which appear to suit them better, at all seasons of the year, than the other districts. The Common Gallinule is extremely abundant during winter along the rivers, fresh-water creeks, lagoons, ponds and lakes, between the Gulf of Mexico and the eastern shores of the Floridas, while in spring and summer a good number migrate eastward into the Carolinas, and now and then a few stragglers may be seen on the fresh waters of the Middle Districts, beyond which none, to my knowledge, have ever been observed. They seldom ascend any of our southern streams to any considerable distance, few are ever met with many miles above Natchez on the Mississippi, and none are to be seen in the Western Country.

In general they are equally diurnal and nocturnal in their habits, and when undisturbed frequent the land as much as the water. In the lower parts of Louisiana and the Floridas, I have seen them seek their food and amuse themselves by day in the pastures and fields, and I have observed both them and the Gallinules of England enacting their courtship, while the sun was yet high above the horizon. In sight of man, however, they are timorous although not shy, and retreat from him among the grass and sedges bordering the water, to which they resort for safety. If shot at, or otherwise frightened, they run with speed, and either fly or swim off as fast as possible, to elude their enemy.

During my various temporary residences in London, I have often seen the Gallinules resort to the grounds in the Regent's Park at all hours of the day. They were there in a manner partially domesticated, and walked quite unconcernedly in the meadows, led their young over the water, and paid their addresses to each other, while fifty or more persons were amusing themselves with feeding the ducks and swans over the bridge leading to the inner circle, and within sight of these birds. While I was at Spring-Garden Spring in East Florida, in the early part of January, the

Gallinules were seen in great numbers on every bayou leading towards the waters of the St John, and at that early period the manifestations of their amatory propensity were quite remarkable. The male birds courted the females, both on the land and on the water; they frequently spread out their tail like a fan, and moved round each other, emitting a murmuring sound for some seconds. The female would afterwards walk to the water's edge, stand in the water up to her breast, and receive the caresses of the male, who immediately after would strut on the water before her, jerking with rapidity his spread tail for a while, after which they would both resume their ordinary occupations. This was in the middle of the day, when I could have counted eight or ten pairs in sight.

The nest is formed with more labour than art, being composed of a quantity of withered rushes and plants, interwoven in a circular form, frequently from two to three inches thick in the centre, surrounded by an edge or brim four or five inches high. If not greatly disturbed, these birds raise several broods in a season, using the same nest, and making additions to it previous to depositing each new set of eggs. In Lower Louisiana I found it usually five or six feet from the water, among the rankest weeds, along the bayous and lakes, which are so numerous there. In some instances it was placed on a prostrate trunk of a tree over the water, when the materials of which it was composed were less abundant than in other circumstances. I never saw one floating loose, but have often heard people say they had occasionally seen a nest in that state, although I am not much disposed to give credit to such assertions. The number of eggs seldom exceeds eight or nine, and is more frequently from five to seven. As the bird lays more than once, its progeny is thus numerous. The Gallinules cover their eggs when they leave them, no doubt to protect them from crows and other enemies, but return to them as soon as food has been procured, although both sexes incubate. The eggs measure an inch and five-eighths, by an inch and one and a half eighths, and are of a dull darkish cream colour, spotted and dotted with various tints of reddish-brown and umber.

The females are as assiduous in their attentions to their young as the wild Turkey Hens; and, although the young take to the water as soon as hatched, the mother frequently calls them ashore, when she nurses and dries them under her body and wings. In this manner she looks after them until they are nearly a month old, when she abandons them and begins to breed again. The young, which are covered with hairy, shining,

black down, swim beautifully, jerking their heads forward at each movement of their feet. They seem to grow surprisingly fast, and at the age of six or seven weeks are strong, active, and perhaps as well able to elude their enemies as the old birds are. Their food consists of grasses, seeds, water-insects, worms, and snails, along with which they swallow a good deal of sand or gravel. They walk and run over the broad leaves of water-lilies, as if on land, dive if necessary, and appear at times to descend into the water in search of food, although I cannot positively assert that they do so.

On more than one occasion, I have seen a flock of these young birds playing on the surface of the water like Ducks, beating it with their wings, and splashing it about in a curious manner, when their gambols would attract a garfish, which at a single dart would seize one of them and disappear. The rest affrighted would run as it were with inconceivable velocity on the surface of the water, make for the shore, and there lie concealed and silent for a quarter of an hour or so. In the streams and ponds of the Floridas, this species and some others of similar habits, suffer greatly from Alligators and Turtles, as well as from various kinds of fish, although, on account of their prolific nature, they are yet abundant.

This Gallinule seldom resorts to salt water, but at times is met with on the banks of bayous in which the water is brackish. This, however, happens only during winter. On land it walks somewhat like a chicken, and thirty, forty, or more individuals may be seen searching for worms and insects among the grass, which they also nip in the manner of the domestic fowl. On such occasions, the constantly repeated movements of their tail are rendered conspicuous by the pure white of the feathers beneath it, which, along with the white stripes on the flanks, and in spring the vivid red of the frontal plate, renders their general appearance quite interesting. In cases of danger, they run with great speed, and easily conceal themselves. On the water they sit very lightly, and swim with activity, the movements of their head and neck keeping pace with those of their feet. They pick up their food from either side, continually jerk their tail, and not unfrequently touch the water with it.

Although not a migratory bird, this species flies very well, whenever it has occasion to rise from the ground. Its wings, although concave, are large for its size, more so in fact than those of *Rallus crepitans*, which migrates to a considerable extent. But in general, the Gallinules are

averse from flying, unless when anxious to remove from one lake or stream to another, when they rise fifty or sixty feet in the air, and fly with ease and considerable velocity, by continued flappings, the neck and legs stretched out. At all other times when raised, they suffer their legs to dangle, proceed slowly to a short distance, and drop among the reeds, or, if over the water, they dive and hide, leaving nothing but the bill projecting above the surface.

The young in autumn have not attained their full size; their colours are much duller than those of the old birds, particularly the stripes on the flanks and under the tail, which are of a dull cream colour instead of being pure white. The frontal plate is small, and almost covered by the feathers around it; the legs and feet are of a dingy green, and the red band on the tibia is scarcely apparent. In spring they acquire their full plumage, but the frontal plate increases in size for several years.

There are great differences as to size between birds of both sexes. The male from which I drew the figure in the plate, was of an average size, having been selected from a bagful procured expressly for the purpose. Our Gallinule corresponds so precisely with that of Europe, that I cannot hesitate in affirming that it is the same species. *

GALLINULA CHLOROPUS, *Lath.* Ind. Ornith. vol. ii. p. 770.

GALLINULA GALEATA, *Ch. Bonaparte*, Amer. Ornith. vol. iv. p. 128. pl. 27. fig. 1.

FLORIDA GALLINULE, GALLINULA GALEATA, *Nuttall*, Manual, vol. ii. p. 223.

Adult Male in Spring. Plate CCXLIV.

Bill shorter than the head, nearly straight, rather stout, deep, compressed, tapering. Upper mandible with a soft oblong plate at the base extending over the forehead, the dorsal line beyond this plate straightish and slightly declinate as far as the middle, then arcuato-declinate, the ridge rather narrow, the sides nearly perpendicular, towards the end slightly convex, the edges sharp, with a notch close upon the narrow obtuse tip. Nasal groove extending to the middle of the bill, rather broad; nostrils submedial, lateral, linear, direct, pervious. Lower mandible with the angle long and narrow, the sides nearly erect, with a groove to the middle, the dorsal line beyond the angle ascending, straight, the edges sharp, inclinate, the tip narrowed, rather sharp.

Head small, oblong, much compressed. Neck of moderate length, slender. Body much compressed. Feet large, long; tibia bare a con-

siderable way above the joint; tarsus rather long, strong, compressed, anteriorly covered with broad scutella, laterally with angular scales, posteriorly with minute scales; hind toe comparatively small, middle toe longest and much longer than the tarsus, fourth considerably shorter, and but little longer than the second; toes free, slender, compressed, scutellate above, flat beneath and marginate; claws rather long, slender, much compressed, acute.

Plumage soft, blended, on the fore part of the head short; a tuft of elongated incurved feathers on the sides. Wings short, broad; alula large; primaries curved, broad, second and third longest, first and sixth about equal; secondaries broad and rounded. Tail short, much rounded, of twelve rather weak rounded feathers, which but slightly exceed the upper and lower coverts.

Frontal plate and bill deep carmine, the ends of both mandibles yellow. Iris bright red. Feet yellowish-green, a portion of the bare part of the tibia carmine; claws dusky. Head and neck deep bluish-grey; that colour continues paler over the breast, sides and abdomen, the latter having the feathers tipped with greyish white, and the posterior hypochondrial feathers having a longitudinal band of white towards the end; lower eyelid white, as are the lateral lower tail-coverts, those in the middle black. The back and wings are deep olive, the latter having a narrow edging of white, which also runs along the outer quill. Tail brownish-black.

Length to end of tail 14 inches, to end of claws 19; extent of wings 22; wing from flexure $7\frac{1}{4}$; tail 3; bill from base of frontal plate $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{4}$; tarsus $2\frac{1}{4}$, middle toe $2\frac{7}{8}$, its claw $\frac{1}{8}$. Weight 12 oz.

The Female is similar to the male, but has the frontal plate smaller.

The Young, when fledged, have the upper part of the head of an olivaceous brown, like the back and wings, the neck of a light dull grey, the chin dull white, the lower parts light grey tinged with yellowish on the breast, most of the feathers tipped with whitish, the lines on the hypochondrial feathers of a dull cream colour and of small extent. The frontal plate is small, and with the bill of a dingy greenish colour, as are the feet, the claws yellowish-brown.

On comparing together a great number of European and American specimens, I can find no specific differences. Individuals of either kind are larger or smaller, their frontal plates differ in size and somewhat in form, as do the bill and the claws; but if the species are really different, Nature has made them so wonderfully like each other, that there seems to me no possibility of distinguishing them.

My friend Dr NEILL has furnished me with the following anecdotes illustrative of the habits of this bird. "At Canonmills Loch, near Edinburgh, a pair (or sometimes two pairs) of water-hens breed yearly, making their nest on the branches of some very large *saughs* (willow-trees, *Salix russeliiana*) growing in my garden, and overhanging the pond. One season (four or five years ago) finding themselves persecuted by a tame heron, which watched and devoured their first young brood (for we detected him in the act), they formed their next nest more than *fifteen* feet high on the trunk of the willow-tree. There the eggs were hatched in safety, four or five young being in due time seen sailing about with the old birds. We had only one pair on the Loch last summer. How they descended to the water can only be conjectured: they might have crept downwards three or four feet, but they must at all events have fallen at once from a height of not less than twelve feet. When the pond is frozen over and covered with skaters, the water-hens enter the garden and conceal themselves in an overgrown rock-work, subsisting on minced flesh mixed with bread or potatoes, purposely laid down for them, and on which I have often watched them feasting when the snow was lying deep."

THE LARGE-BILLED GUILLEMOT.

URIA BRUNNICHII, SABINE.

PLATE CCXLV. ADULT MALE.

I HAVE never observed this bird on any part of the coast of our Middle Districts, and, although I was told that it not unfrequently occurred about the Bay of Boston, I failed in my endeavours to procure it there. The specimen from which my figure was made was sent to me in ice, along with several other rare birds, from Eastport in Maine. I received it quite fresh and in excellent plumage, on the 18th of February 1833. It had been shot along with several other individuals of the same species while searching for food in the waters of Pasmaquody Bay, which were then covered with broken ice. Its flight was described by Mr CURTIS, who sent it to me, as similar to that of the Foolish Guillemot, with which it associated. No other information was transmitted, excepting that it dived and swam like the other species. I afterwards sent the skin to my friend JOHN BACHMAN, in whose collection it remains.

No individuals of this species were observed by my party on our way to Labrador; and as the Foolish Guillemot was abundant on the coast of that country, I concluded that the Thick-billed Guillemots which visit our eastern seas in winter, set out for the far north at an earlier period than the others. I am indebted to Mr HEWITSON of Newcastle, author of the "British Oology," for a description of an egg of this bird, which is in the valuable collection of the Messrs HANCOCKS, who procured it from Greenland. It measures $3\frac{1}{8}$ inches in length, by $2\frac{1}{8}$ at its broadest part, and is of a bluish-green colour, streaked and spotted with black or very dark umber. *

URIA BRUNNICHII, Ch. Bonaparte, Synops. of Birds of United States, p. 424.

URIA BRUNNICHII, BRUNNICH'S GUILLEMOT, Swains. and Richards. Fauna-Bor. Amer. part ii. p. 477.

LARGE-BILLED GUILLEMOT, Nuttall, Manual, vol. ii. p. 529.

Adult Male in winter. Plate CCXLV.

Bill shorter than the head, stout, tapering, compressed, acute. Upper

mandible with the dorsal line slightly curved, the ridge narrow, broader at the base, the sides sloping, the edges sharp and inflected, the tip a little decurved, with a slight notch. Nasal groove broad, feathered; nostrils at its lower edge, subbasal, lateral, longitudinal, linear, pervious. Lower mandible with the angle medial, narrow, the dorsal line sloping upwards and straight, the back very narrow, the sides nearly flat, the edges sharp and inflected.

Head large, oblong, depressed, narrowed before. Eyes of moderate size. Neck short and thick. Body stout, rather depressed. Wings small. Feet short, placed far behind; the greater part of the tibia concealed, its lower portion bare; tarsus short, stout, compressed, anteriorly sharp, and covered with a double row of scutella, the sides with angular scales; toes of moderate length, the first wanting, the third longest, the fourth longer than the second, all covered above with numerous scutella, webbed, the lateral ones with small margins; claws small, slightly arched, compressed, rather acute, that of the middle toe largest, with a dilated inner edge.

Plumage dense, very soft, blended; on the head very short. Wings rather short, narrow, acute; primary quills curved, tapering, the second longest, the first slightly shorter, the rest rapidly graduated; secondaries short, incurved, broad, rounded. Tail very short, rounded, of twelve narrow feathers.

Bill black. Iris dark brown. Feet dusky, tinged with red. The general colour of the plumage is greyish-black on the upper parts, those of the head tinged with brown. The sides of the head and neck, its fore part, the breast, abdomen, edges of the wings and the tips of the secondaries, white; the sides shaded with greyish-black; a line of the same behind the eye.

Length to end of tail $18\frac{1}{2}$ inches, to end of claws $21\frac{1}{2}$; extent of wings 30; wing from flexure 8, tail $2\frac{1}{2}$; bill along the ridge $1\frac{2}{3}$, along the edge of lower mandible 2; tarsus $1\frac{4}{5}$; middle toe $1\frac{6}{7}$, its claw $\frac{5}{12}$. Weight $2\frac{1}{4}$ lb.

PITTING OF WOLVES.

THERE seems to be a universal feeling of hostility among men against the Wolf, whose strength, agility, and cunning, which latter is scarcely inferior to that of his relative master Reynard, tend to render him an object of hatred; especially to the husbandman, on whose flocks he is ever apt to commit depredations. In America, where this animal was formerly abundant, and in many parts of which it still occurs in considerable numbers, it is not more mercifully dealt with than in other parts of the world. Traps and snares of all sorts are set for catching it, while dogs and horses are trained for hunting the Fox. The Wolf, however, unless in some way injured, being more powerful and perhaps better winded than the Fox, is rarely pursued with hounds or any other dogs in open chase; but as his depredations are at times extensive and highly injurious to the farmer, the greatest exertions have been used to exterminate his race. Few instances have occurred among us of any attack made by Wolves on man, and only one has come under my own notice.

Two young Negroes who resided near the banks of the Ohio, in the lower part of the State of Kentucky, about twenty-three years ago, had sweethearts living on a plantation ten miles distant. After the labours of the day were over, they frequently visited the fair ladies of their choice, the nearest way to whose dwelling lay directly across a great cane brake. As to the lover every moment is precious, they usually took this route, to save time. Winter had commenced, cold, dark, and forbidding, and after sunset scarcely a glimpse of light or glow of warmth, one might imagine, could be found in that dreary swamp, excepting in the eyes and bosoms of the ardent youths, or the hungry Wolves that prowled about. The snow covered the earth, and rendered them more easy to be scented from a distance by the famished beasts. Prudent in a certain degree, the young lovers carried their axes on their shoulders, and walked as briskly as the narrow path would allow. Some transient glimpses of light now and then met their eyes, but so faint were they that they believed them to be caused by their faces coming in contact with the slender reeds covered with snow. Suddenly, however, a long and frightful howl burst upon them, and they instantly knew that it proceeded from a troop of hungry, perhaps desperate Wolves. They

stopped, and putting themselves in an attitude of defence, awaited the result. All around was dark, save a few feet of snow, and the silence of night was dismal. Nothing could be done to better their situation, and after standing a few minutes in expectation of an attack, they judged it best to resume their march; but no sooner had they replaced their axes on their shoulders, and begun to move, than the foremost found himself assailed by several foes. His legs were held fast as if pressed by a powerful screw, and the torture inflicted by the fangs of the ravenous animal was for a moment excruciating. Several Wolves in the mean time sprung upon the breast of the other Negro, and dragged him to the ground. Both struggled manfully against their foes; but in a short time one of them ceased to move, and the other, reduced in strength, and perhaps despairing of maintaining his ground, still more of aiding his unfortunate companion, sprung to the branch of a tree, and speedily gained a place of safety near the top. The next morning, the mangled remains of his comrade lay scattered around on the snow, which was stained with blood. Three dead Wolves lay around, but the rest of the pack had disappeared, and Scipio, sliding to the ground, took up the axes, and made the best of his way home, to relate the sad adventure.

About two years after this occurrence, as I was travelling between Henderson and Vincennes, I chanced to stop for the night at a farmer's house by the side of the road. After putting up my horse and refreshing myself, I entered into conversation with mine host, who asked if I should like to pay a visit to the wolf-pits, which were about half a mile distant. Glad of the opportunity I accompanied him across the fields to the neighbourhood of a deep wood, and soon saw the engines of destruction. He had three pits, within a few hundred yards of each other. They were about eight feet deep, and broader at bottom, so as to render it impossible for the most active animal to escape from them. The aperture was covered with a revolving platform of twigs, attached to a central axis. On either surface of the platform was fastened a large piece of putrid venison, with other matters by no means pleasant to my olfactory nerves, although no doubt attractive to the Wolves. My companion wished to visit them that evening, merely as he was in the habit of doing so daily, for the purpose of seeing that all was right. He said that Wolves were very abundant that autumn, and had killed nearly the whole of his sheep and one of his colts, but that

he was now "paying them off in full;" and added that if I would tarry a few hours with him next morning, he would beyond a doubt shew me some sport rarely seen in those parts. We retired to rest in due time, and were up with the dawn.

"I think," said my host, "that all's right, for I see the dogs are anxious to get away to the pits, and although they are nothing but curs, their noses are none the worse for that." As he took up his gun, an axe and a large knife, the dogs began to howl and bark, and whisked around us, as if full of joy. When we reached the first pit, we found the bait all gone, and the platform much injured; but the animal that had been entrapped had scraped a subterranean passage for himself and so escaped. On peeping into the next, he assured me that "three famous fellows were safe enough" in it. I also peeped in and saw the Wolves, two black, and the other brindled, all of goodly size, sure enough. They lay flat on the earth, their ears laid close over the head, their eyes indicating fear more than anger. "But how are we to get them out?"—"How Sir," said the farmer, "why by going down to be sure, and ham-stringing them." Being a novice in these matters, I begged to be merely a looker-on. "With all my heart," quoth the farmer, "stand here, and look at me through the brush." Whereupon he glided down, taking with him his axe and knife, and leaving his rifle to my care. I was not a little surprised to see the cowardice of the Wolves. He pulled out successively their hind legs, and with a side stroke of the knife cut the principal tendon above the joint, exhibiting as little fear as if he had been marking lambs.

"Lo!" exclaimed the farmer, when he had got out, "we have forgot the rope; I'll go after it." Off he went accordingly, with as much alacrity as any youngster could shew. In a short time he returned out of breath, and wiping his forehead with the back of his hand—"Now for it." I was desired to raise and hold the platform on its central balance, whilst he, with all the dexterity of an Indian, threw a noose over the neck of one of the Wolves. We hauled it up motionless with fright, as if dead, its disabled legs swinging to and fro, its jaws wide open, and the gurgle in its throat alone indicating that it was alive. Letting him drop on the ground, the farmer loosened the rope by means of a stick, and left him to the dogs, all of which set upon him with great fury and soon worried him to death. The second was dealt with in the same manner; but the third, which was probably the oldest, as it was the blackest,

shewed some spirit, the moment it was left loose to the mercy of the curs. This Wolf, which we afterwards found to be a female, scuffled along on its fore legs at a surprising rate, giving a snap every now and then to the nearest dog, which went off howling dismally with a mouthful of skin torn from its side. And so well did the furious beast defend itself, that apprehensive of its escape, the farmer levelled his rifle at it, and shot it through the heart, on which the curs rushed upon it, and satiated their vengeance on the destroyer of their master's flock.

THE EIDER DUCK.

FULIGULA MOLLISSIMA, BONAP.

PLATE CCXLVI. MALE AND FEMALE.

THE history of this remarkable duck must ever be looked upon with great interest by the student of nature. The depressed form of its body, the singular shape of its bill, the beautiful colouring of its plumage, the value of its down as an article of commerce, and the nature of its haunts, render it a very remarkable species. Considering it as such, I shall endeavour to lay before you as full an account of it as I have been able to obtain from my own observation.

The fact that the Eider Duck breeds on our eastern coasts, must be interesting to the American Ornithologist, whose fauna possesses but few birds of this family that do so. The Fuligulæ are distinguished from all other ducks that feed in fresh or salt water, by the comparative shortness of the neck, the greater expansion of their feet, the more depressed form of their body, and their power of diving to a considerable depth, in order to reach the beds on which their favourite shelly food abounds. Their flight, too, differs from that of the true ducks, inasmuch as it is performed nearer the surface of the water. Rarely, indeed, do the Fuligulæ fly at any considerable height over that element, and with the exception of three species, they are rarely met with inland, unless when driven thither by storms. They differ, moreover, in their propensity to breed in communities, and often at a very small distance from each other. Lastly, they are in general more ready to abandon their females, the moment incubation has commenced. Thus the female is left in a state of double responsibility, which she meets, however, with a courage equal to the occasion, although alone and unprotected.

The Eider is now seldom seen farther south along our eastern coast than the vicinity of New York. WILSON says they are occasionally observed as far as the Capes of Delaware; but at the present day this must be an extremely rare occurrence, for the fishermen of the Jerseys informed me that they knew nothing of this duck. In WILSON's time, however, it bred in considerable numbers, from Boston to the Bay of Fundy, and it is still to be met with on the rocky shores and islands between these

points. Farther to the eastward they become more and more plentiful, until you reach Labrador, to which thousands of pairs annually resort, to breed and spend the short summer. Many, however, proceed much farther north; but, as usual, I will here confine myself to my own observations.

In the latter part of October 1832, the Eiders were seen in considerable numbers in the Bay of Boston. A large bagful of them was brought to me by a fisherman-gunner in my employ, a person advanced in years, formerly a brave tar, and one whom I feel some pride in telling you I assisted in obtaining a small pension from our government, being supported in my application by two of my Boston friends, the one the generous GEORGE PARKMAN, M. D., the other that great statesman JOHN QUINCEY ADAMS. The old man had once served under my father, and to receive a bagful of Eider Ducks from him was a gratification which you may more easily conceive than I can describe. Well, there were the ducks, all turned out on the floor; young males still resembling their mother, others of more advanced age, and several males and females complete in all their parts, only that the bills of the former had lost the orange tint, which that part exhibits during a few weeks of the breeding season. Twenty-one there were in all, and they had been killed in a single day by the veteran and his son. Those masterly gunners told me, that to procure this species, they were in the habit of anchoring their small vessel about fifty yards off the rocky isles round which these birds harbour and feed at this season. There, while the birds were passing on wing, although usually in long lines, they could now and then kill two of them at a shot. Sometimes the King Eider was also procured under similar circumstances, as the two species are wont to associate together during winter. At Boston the Eiders sold that winter at from fifty to seventy-five cents the pair, and they are much sought after by Epicures.

On the 31st of May 1833, my son and party killed six Eiders on the island of Grand Manan, off the Bay of Fundy, where the birds were seen in considerable numbers, and were just beginning to breed. A nest containing two eggs, but not a particle of down, was found at a distance of more than fifty yards from the water.

Immediately after landing on the coast of Labrador, on the 18th of June in the same year, we saw a great number of "Sea Ducks," as the gunners and fishermen on that coast, as well as on our own, call the Eiders and some other species. On visiting an island in "Partridge Bay," we

procured several females. The birds there paid little attention to us, and some allowed us to approach within a few feet before they left their nests, which were so numerous that a small boat-load might have been collected, had the party been inclined. They were all placed amid the short grass growing in the fissures of the rock, and therefore in rows, as it were. The eggs were generally five or six, in several instances eight, and in one ten. Not a male bird was to be seen. At the first discharge of the guns, all the sitting birds flew off and alighted in the sea, at a distance of about a hundred yards. They then collected, splashed up the water, and washed themselves, until the boat left the place. Many of the nests were unprovided with down; some had more or less than others, and some, from which the female was absent when the party landed, were quite covered with it, and the eggs felt warm to the hand. The mosquitoes and flies were there as abundant and as tormenting as in any of the Florida swamps.

On the 24th of the same month, two male Eiders, much advanced in the moult, were shot out of a flock all composed of individuals of the same sex. While rambling over the moss-covered shores of a small pond, on the 7th of July, we saw two females with their young on the water. As we approached the edges, the old birds lowered their heads and swam off with those parts lying flat on the surface, while the young followed so close as almost to touch them. On firing at them without shot, they all dived at once, but rose again in a moment, the mothers quacking and murmuring. The young dived again, and we saw no more of them; the old birds took to wing, and, flying over the hills, made for the sea, from which we were fully a mile distant. How their young were to reach it was at that time to me a riddle; but was afterwards rendered intelligible, as you will see in the sequel. On the 9th of July, while taking an evening walk, I saw flocks of female Eiders without broods. They were in deep moult, kept close to the shore in a bay, and were probably sterile birds. On my way back to the vessel, the captain and I started a female from a broad flat rock, more than a hundred yards from the water, and, on reaching the spot, we found her nest, which was placed on the bare surface, without a blade of grass within five yards of it. It was of the usual bulky construction, and contained five eggs, deeply buried in down. She flew round us until we retired, when we had the pleasure to see her alight, walk to her nest, and compose herself upon it.

Large flocks of males kept apart, and frequented the distant sea islands at this period, when scarcely any were able to fly to any distance, although

they swam about from one island to another with great ease. Before their moulting had commenced, or fully a month earlier, these male birds, we observed, flew in long lines from place to place around the outermost islands every morning and evening, thus securing themselves from their enemies, and roosted in numbers close together on some particular rock difficult to be approached by boats, where they remained during the short night. By the 1st of August scarcely an Eider Duck was to be seen on the coast of Labrador. The young were then able to fly, the old birds had nearly completed their moult, and all were moving southward.

Having now afforded you some idea of the migrations and general habits of this interesting bird from spring to the close of the short summer of the desolate regions of Labrador, I proceed, with my journals before me, and my memory refreshed by reading my notes, to furnish you with such details as may perhaps induce you to study its habits in other parts of the world.

The Eider Duck generally arrives on the coasts of Newfoundland and Labrador about the 1st of May, nearly a fortnight before the waters of the Gulf of St Lawrence are freed from ice. None are seen there during winter, and their first appearance is looked upon with pleasure by the few residents as an assurance of the commencement of the summer season. At this period they are seen passing in long files not many feet above the ice or the surface of the water, along the main shores, and around the inner bays or islands, as if in search of the places where they had formerly nestled, or where they had been hatched. All the birds appear to be paired, and in perfect plumage. After a few days, during which they rest themselves on the shores fronting the south, most of them remove to the islands that border the coast, at distances varying from half a mile to five or six miles. The rest seek for places in which to form their nests, along the craggy shores, or by the borders of the stunted fir woods not far from the water, a few proceeding as far as about a mile into the interior. They are now seen only in pairs, and they soon form their nests. I have never had an opportunity of observing their courtships, nor have I received any account of them worthy of particular notice.

In Labrador, the Eider Ducks begin to form their nests about the last week of May. Some resort to islands scantily furnished with grass, near the tufts of which they construct their nests; others form them beneath the spreading boughs of the stunted firs, and in such places, five, six, or even eight are sometimes found beneath a single bush. Many are

placed on the sheltered shelvings of rocks a few feet above high-water mark, but none at any considerable elevation, at least none of my party, including the sailors, found any in such a position. The nest, which is sunk as much as possible into the ground, is formed of sea-weeds, mosses, and dried twigs, so matted and interlaced as to give an appearance of neatness to the central cavity, which rarely exceeds seven inches in diameter. In the beginning of June the eggs are deposited, the male attending upon the female the whole time. The eggs, which are regularly placed on the moss and weeds of the nest, without any down, are generally from five to seven, three inches in length, two inches and one eighth in breadth, being thus much larger than those of the domestic Duck, of a regular oval form, smooth-shelled, and of a uniform pale olive green. I may here mention, by the way, that they afford delicious eating. I have not been able to ascertain the precise period of incubation. If the female is not disturbed, or her eggs removed or destroyed, she lays only one set in the season, and as soon as she begins to sit the male leaves her. When the full complement of eggs has been laid, she begins to pluck some down from the lower parts of her body; this operation is daily continued for some time, until the roots of the feathers, as far forward as she can reach, are quite bare, and as clean as a wood from which the undergrowth has been cleared away. This down she disposes beneath and around the eggs. When she leaves the nest to go in search of food, she places it over the eggs, and in this manner, it may be presumed to keep up their warmth, although it does not always ensure their safety, for the Black-backed Gull is apt to remove the covering, and suck or otherwise destroy the eggs.

No sooner are the young hatched than they are led to the water, even when it is a mile distant, and the travelling difficult, both for the parent bird and her brood; but when it happens that the nest has been placed among rocks over the water, the Eider, like the Wood Duck, carries the young in her bill to their favourite element. I felt very anxious to find a nest placed over a soft bed of moss or other plants, to see, whether, like the Wood Duck on such occasions, the Eider would suffer her young ones to fall from the nest; but unfortunately I had no opportunity of observing a case of this kind. The care which the mother takes of her young for two or three weeks, cannot be exceeded. She leads them gently in a close flock in shallow waters, where, by diving, they procure food, and at times, when the young are fatigued, and at some distance from the shore,

she sinks her body in the water, and receives them on her back, where they remain several minutes. At the approach of their merciless enemy, the Black-backed Gull, the mother beats the water with her wings, as if intending to raise the spray around her, and on her uttering a peculiar sound, the young dive in all directions, while she endeavours to entice the marauder to follow her, by feigning lameness, or she leaps out of the water and attacks her enemy, often so vigorously, that, exhausted and disappointed, he is glad to fly off, on which she alights near the rocks, among which she expects to find her brood, and calls them to her side. Now and then I saw two females which had formed an attachment to each other, as if for the purpose of more effectually contributing to the safety of their young, and it was very seldom that I saw these prudent mothers assailed by the gull.

The young, at the age of one week, are of a dark mouse colour, thickly covered with soft warm down. Their feet at this period are proportionally very large and strong. By the 20th of July they seemed to be all hatched. They grew rapidly, and when about a fortnight old were, with great difficulty, obtained, unless during stormy weather, when they at times retired from the sea to shelter themselves under the shelvings of the rocks at the head of shallow bays. It is by no means difficult to rear them, provided proper care be taken of them, and they soon become quite gentle and attached to the place set apart for them. A fisherman of Eastport, who carried eight or ten of them from Labrador, kept them several years in a yard close to the water of the bay, to which, after they were grown, they daily betook themselves, along with some common ducks, regularly returning on shore towards evening. Several persons who had seen them, assured me that they were as gentle as their associates, and although not so active on land, were better swimmers, and moved more gracefully on the water. They were kept until the male birds acquired their perfect plumage and mated; but some gunners shot the greater number of them one winter day, having taken them for wild birds, although none of them could fly, they having been pinioned. I have no doubt that if this valuable bird were domesticated, it would prove a great acquisition, both on account of its feathers and down, and its flesh as an article of food. I am persuaded that very little attention would be necessary to effect this object. When in captivity, it feeds on different kinds of grain and moistened corn-meal, and its flesh becomes excellent. Indeed, the sterile females which we procured at Labrador in considerable num-

ber, tasted as well as the mallard. The males were tougher and more fishy, so that we rarely ate of them, although the fishermen and settlers paid no regard to sex in this matter.

When the female Eider is suddenly discovered on her nest, she takes to wing at a single spring; but if she sees her enemy at some distance, she walks off a few steps, and then flies away. If unseen by a person coming near, as may often happen, when the nest is placed under the boughs of the dwarf fir, she will remain on it, although she may hear people talking. On such occasions my party frequently discovered the nests by raising the pine branches, and were often as much startled as the ducks themselves could be, as the latter instantly sprung past them on wing, uttering a harsh cry. Now and then some were seen to alight on the ground within fifteen or twenty yards, and walk as if lame and broken-winged, crawling slowly away, to entice their enemies to go in pursuit. Generally, however, they would fly to the sea, and remain there in a large flock until their unwelcome visitors departed. When pursued by a boat, with their brood around them, they allowed us to come up to shooting distance, when, feigning decrepitude, they would fly off, beating the water with partially extended wings, while the young either dived or ran on the surface with wonderful speed, for forty or fifty yards, then suddenly plunged, and seldom appeared at the surface unless for a moment. The mothers always flew away as soon as their brood dispersed, and then ended the chase. The cry or note of the female is a hoarse rolling croak; that of the male I never heard.

Should the females be robbed of their eggs, they immediately go off in search of mates, whether their previous ones or not I cannot tell, although I am inclined to think so. However this may be, the duck in such a case soon meets with a drake, and may be seen returning the same day with him to her nest. They swim, fly, and walk side by side, and by the end of ten or twelve days the male takes his leave, and rejoins his companions out at sea, while the female is found sitting on a new set of eggs, seldom, however, exceeding four. But this happens only at an early period of the season, for I observed that as soon as the males had begun to moult, the females, whose nests had been plundered, abandoned the place. One of the most remarkable circumstances connected with these birds is, that the females with broods are fully three weeks later in moulting than the males, whereas those which do not breed begin to moult as early as they. This may probably seem strange, but I

became quite satisfied of the fact while at Labrador, where, from the number which we procured in a state of change, and the vast quantities every now and then in sight, our opportunities of observing these birds in a perfectly natural state were ample.

Some authors have said that the males keep watch near the females ; but, although this may be the case in countries such as Greenland and Iceland, where the Eiders have been trained into a state of semi-domestication, it certainly was not so in Labrador. Not a single male did we there see near the females after incubation had commenced, unless in the case mentioned above, when the latter had been deprived of their eggs. The males invariably kept aloof and in large flocks, sometimes of a hundred or more individuals, remaining out at sea over large banks with from seven to ten fathoms of water, and retiring at night to insular rocks. It seemed very wonderful that in the long lines in which we saw them travelling, we did not on any occasion discover among them a young bird, or one not in its mature plumage. The young males, if they breed before they acquire their full colouring, must either be by themselves at this period, or with the barren females, which, as I have already said, separate from those that are breeding. I am inclined to believe that the old males commence their southward migration before the females or the young, as none were to be seen for about a fortnight before the latter started. In winter, when these Ducks are found on the Atlantic shores of the United States, the males and females are intermingled ; and at the approach of spring the mated pairs travel in great flocks, though disposed in lines, when you can distinctly see individuals of both sexes alternating.

The flight of the Eider is firm, strong, and generally steady. They propel themselves by constant beats of the wings, undulating their lines according to the inequality of surface produced by the waves, over which they pass at the height of a few yards, and rarely more than a mile from the shores. Few fly across the Gulf of St Lawrence, as they prefer following the coasts of Nova Scotia and Newfoundland, to the eastern entrance of the straits of Belle Isle, beyond which many proceed farther north, while others ascend that channel and settle for the season along the shores of Labrador, as far up as Partridge Bay, and still farther up the St Lawrence. Whilst on our waters, or at their breeding grounds, the Eiders are not unfrequently seen flying much higher than when travelling, but in that case they seem to be acting with the intention of

guarding against their enemy man. The velocity of their flight has been ascertained to be about eighty miles in the hour.

This species dives with great agility, and can remain a considerable time under water, often going down in search of food to the depth of eight or ten fathoms, or even more. When wounded, however, they soon become fatigued in consequence of the exertion used in diving, and may be overtaken by a well-manned boat in the course of half an hour or so, as when fatigued they swim just below the surface, and may be struck dead with an oar or a boat-hook.

Their food consists principally of shell-fish, the shells of which they seem to have the power of breaking into pieces. In many individuals which I opened, I found the entrails almost filled with small fragments of shells mixed with other matter. Crustaceous animals and their roe, as well as that of various fishes, I also found in their stomach, along with pebbles sometimes as large as a hazel nut. The œsophagus, which is in form like a bag, and is of a leathery firm consistence, was often found distended with food, and usually emitted a very disagreeable fishy odour. The gizzard is extremely large and muscular. The trachea of the young male, so long as it remains in its imperfect plumage, or for the first twelve months, does not resemble that of the old male; but on this subject I intend to speak at length on another occasion. The males do not obtain their full plumage until the fourth winter. They at first resemble the mother, then gradually become pie-bald, but not in less time than between two and three years.

The Eider Duck takes a heavy shot, and is more easily killed on wing than while swimming. When on shore they mark your approach while you are yet at a good distance, and fly off before you come within shot. Sometimes you may surprise them while swimming below high rocks, and, if you are expert, then shoot them; but when they have first seen you, it is seldom that you can procure them, as they dive with extreme agility. While at Great Macatina Harbour, we discovered a large basin of water, communicating with the sea by a very narrow passage about thirty yards across, and observed that at particular stages of the tides the Eider Ducks entered and returned by it. By hiding ourselves on both sides of this channel, we succeeded in killing a good number, but rarely more than one at a shot, although sometimes we obtained from a single file as many as we had of gun-barrels.

Excepting in a single nest, I found no down clean, it having been in

every other instance more or less mixed with small dry fir twigs and bits of grass. When cleaned, the down of a nest rarely exceeds an ounce in weight, although, from its great elasticity, it is so bulky as to fill a hat, or if properly prepared even a larger space. The eggers of Labrador usually collect it in considerable quantity, but at the same time make such havock among the birds, that at no very distant period the traffic must cease.

ANAS MOLLISSIMA, Linn. Syst. Nat. vol. i. p. 198.—Lath. Ind. Ornith. vol. ii. p. 845.

FULIGULA MOLLISSIMA, Ch. Bonaparte, Synops. of Birds of the United States, p. 388.

SOMATERIA MOLLISSIMA, Swains. and Richards, Fauna Bor. Amer. part ii. p. 448.

EIDER DUCK, Nuttall, Manual, vol. ii. p. 406.

Adult Male. Plate CCXLVI. Figs. 1. 1.

Bill about the length of the head, deeper than broad at the base, somewhat depressed towards the end, which is broad and rounded. Upper mandible with a soft tumid substance at the base, extending upon the forehead, and deeply divided into two narrow rounded lobes, its whole surface marked with divergent oblique lines, the dorsal outline nearly straight and sloping to beyond the nostrils, then curved, the ridge broad at the base, broadly convex towards the end, the edges perpendicular, obtuse, with about fifty small lamellæ on the inner side, the unguis very large, elliptical. Nostrils submedial, oblong, large, pervious, nearer the ridge than the edge. Lower mandible flattened, with the angle very long, rather narrow and rounded, the dorsal line short and slightly convex, the edges with about sixty lamellæ, the unguis very broad, elliptical.

Head very large. Eyes of moderate size. Neck of moderate length, rather slender at its upper part. Body bulky and much depressed. Wings rather small. Feet very short, strong, placed rather far behind; tarsus very short, compressed, anteriorly having a series of scutella in its whole length, and a partial series above the fourth toe, the rest reticulated with angular scales. Hind toe small, with a free membrane beneath; anterior toes double the length of the tarsus, connected by reticulated membranes, having a sinus at their free margins, the inner with a broad lobed marginal membrane, the outer with a thickened edge; all obliquely scutellate above, the third and fourth about equal and longest. Claws small, that of first toe very small and curved, of middle toe largest, all rather depressed and blunt.

Plumage short, dense, soft, blended. Feathers on the fore part of the head extremely small; on the upper part very narrow, on the occiput and upper and lateral parts of the neck hairlike, stiff and glossy. Wings rather short, narrow, pointed; primary quills curved, strong, tapering, the first longest, the second scarcely shorter, the rest rapidly graduated; secondaries short, broad, rounded, the inner elongated, tapering, and recurved. Tail very short, much rounded, of sixteen narrow feathers.

Bill pale greyish-yellow, the unguis lighter, the soft tumid part pale flesh-colour. Iris brown. Feet dingy light green, the webs dusky. Upper part of the head bluish-black; the central part from the occiput to the middle white. The hair-like feathers on the upper part and sides of the neck are of a delicate pale green tint. The sides of the head, the throat, and the neck, are white, the fore neck at its lower part of a fine colour intermediate between buff and cream-colour. The rest of the lower surface is brownish-black, as are the upper tail-coverts, and the central part of the rump. The rest of the back, the scapulars, smaller wing-coverts, and inner curved secondary quills, white, the scapulars tinged with yellow. Secondary coverts and outer secondaries brownish-black; primaries and tail-coverts greyish-brown.

Length to end of tail 25 inches, to end of wings $21\frac{1}{2}$, to end of claws 27; extent of wings 42; wing from flexure $11\frac{1}{2}$; tail $4\frac{1}{4}$; bill from extremity of tumid part $2\frac{1}{2}$, from its notch $2\frac{1}{2}$, along the edge of lower mandible $2\frac{1}{2}$; tarsus $1\frac{3}{4}$; middle toe $2\frac{1}{2}$, its claw $\frac{7}{8}$. Weight in winter, 5 lb. $5\frac{1}{2}$ oz.; in breeding time 4 lb. $8\frac{1}{4}$ oz.

Adult Female. Plate CCXLVI. Fig. 2.

The Female differs greatly from the Male. The bill is shorter, its tumid basal part much less and narrower. The feathers of the head and upper part of the neck are very small, soft, and uniform; the scapulars and inner secondaries are not elongated, as in the male. Bill pale greyish-green; iris and feet as in the male. The head and neck all round light brownish-red with small lines of brownish-black. Lower part of neck all round, the whole upper surface, the sides, and the lower tail-coverts of the same colours, but there the brownish-black markings are broad. Secondary quills and larger coverts greyish-brown, tipped with white, primaries brownish-black; tail-feathers greyish-brown. Breast and abdomen greyish-brown, obscurely mottled.

Length to end of tail 24 inches, to end of wings $20\frac{1}{2}$, to end of claws 27;

extent of wings 39; wing from flexure $11\frac{1}{4}$; tail 4; bill $3\frac{7}{16}$; tarsus $1\frac{3}{4}$; middle toe $2\frac{7}{8}$, its claw $\frac{5}{16}$. Weight in winter 4 lb. $4\frac{1}{2}$ oz.; in breeding time 3 lb. 12 oz.

The down of the female is light grey; that of the male on the white parts is pure white, on the dark, greyish-white.

I have represented three of these birds in a state of irritation. A mated pair, having a few eggs already laid, have been approached by a single male, and are in the act of driving off the intruder, who, to facilitate his retreat, is lashing his antagonists with his wings.

THE VELVET DUCK.

FULIGULA FUSCA, BONAP.

PLATE CCXLVII. MALE AND FEMALE.

THE Velvet Duck arrives from the north along the shores of the Middle States, about the first of September, and extends to a greater or less distance southward, according to the state of the weather, often proceeding as far as Georgia. The Bay of Chesapeake and all the estuaries to the eastward are amply furnished with it, and there it is usually seen in company with the American Scoter, the Golden-eyed Duck, and some other species. It very rarely enters fresh waters during its stay on our coast, and is with great propriety called a Sea Duck. My friend THOMAS NUTTALL mentions that some, which probably were young birds, had been seen in Fresh Pond near Cambridge in Massachusetts. This is the only case of the kind that I have heard of, although these birds breed in fresh water lakes and in rivers, in which they remain at the season of reproduction about two months.

In the beginning of April, the Velvet Ducks, which are gregarious, collect in large flocks, for the purpose of removing to their northern breeding places, and as they fly steadily onwards, you may see thousands passing at short distances from the shores, and forming an almost continuous line, each flock composed of twenty or thirty individuals, which fly low and irregularly, ranged in an angular form. While on the Bay of Fundy, I went with my party to a projecting cape, round which these birds passed during our stay, from daylight until evening. When it blows hard from the sea, the Ducks come near to the shore, and afford abundant opportunities to such sportsmen as are fond of shooting them.

As we approached the shores of Labrador, we found the waters covered with dense flocks of these birds, and yet they continued to arrive there from the St Lawrence for several days in succession. We were all astonished at their numbers, which were such that we could not help imagining that all the Velvet Ducks in the world were passing before us. This was about the middle of June, which I thought late for them, but the season had been tardy, and the fishermen informed us, that when the weather is warmer, these birds pass a fortnight earlier. The greater num-

ber merely appear for a few days on their way farther north, but some remain to breed on the southern coast of Labrador. Thousands of sterile individuals, however, spend the summer on the Bay of Fundy.

During the breeding season, the Velvet Duck resembles the Eider in its habits, only that it prefers fresh water, which is rarely the case with the other species. The males leave the females after incubation has commenced. Those which breed at Labrador begin to form their nests from the 1st to the 10th of June, and on the 28th of July I caught some young ones several days old. The nests are placed within a few feet of the borders of small lakes, a mile or two distant from the sea, and usually under the low boughs of the bushes, of the twigs of which, with mosses and various plants matted together, they are formed. They are large and almost flat, several inches thick, with some feathers of the female, but no down, under the eggs, which are usually six in number, intermediate in size between those of the Eider and King Ducks, measuring an inch and three quarters in length, one and seven-eighths in breadth, of a uniform pale cream colour tinged with green, not pure white as stated by some authors. On the 28th of July I procured five young ones out of a brood of six, among which, although to appearance scarcely a week old, I could readily distinguish the males from the females as they swam on the little pond around their mother, the former having already a white spot under the eye. The down with which they were covered was rather stiff and hair-like, of a black colour, excepting under the chin, where there was a small patch of white. They swam with great ease, and when we drove them into a narrow place for the purpose of catching them, they several times turned upon us and dived with the view of getting back to the middle of the pond, so that at last we found it necessary to shoot them. Only one escaped ashore, which my young friend THOMAS LINCOLN caught, but afterwards restored to its mother, which continued on the pond, manifesting the greatest anxiety, and calling to her brood all the while with short squeaking notes, by no means unpleasant to the ear. On being shot at, she flew off to another pond, but soon returned. Her plumage was rusty and ragged, but the wings seemed to be complete, as she flew with great ease, springing at once from the water.

Mr JONES of Bras d'Or assured me, that either that individual or another of the same species, had bred on the same pond for six or seven years in succession, and that he had looked at the nest and observed her manners when leading about the young, which he said did not leave the

pond until they were able to fly. That year, 1833, she and her mate had arrived nearly a month later than usual. This accounted for the small size of the young, which he was sorry to see dead; and here let me say that Mr JONES, who is not only a good-hearted and benevolent man, but also fond of observing nature, was the first person I met with who could give me any rational account of the ducks which bred in his vicinity.

A few of the Velvet Ducks breed on the Island of Grand Manan, and in other places about the Bay of Fundy, but rarely farther south, and the number that remain in Labrador is comparatively small, as we did not observe there more than six or seven broods. They generally leave that part of the coast about the middle of August; but that season they were still seen after the Eider Ducks had departed, which makes me think that they require more warmth than these birds before they begin to lay their eggs. Captain JAMES CLARK ROSS, of the British Royal Navy, a gentleman, besides his professional merits, distinguished for his love of science, informed me that none of these birds were observed on either of his Arctic voyages. The extreme limits of their migrations remain unknown. I have already related the manner in which this and several other species are caught by the Indians in the Bay of Fundy, and therefore it is unnecessary that I should repeat it here, as you will find it at p. 487. of Vol. II.

The flight of the Velvet Duck is strong and sustained, although it usually flies low; yet when pursued, or at the sight of gunners in a boat, it often rises to the height of forty or fifty yards, describes elegant curved lines as it passes and repasses, and thus continues to fly until danger is no longer apprehended. Its movements in the air are performed by continued flappings, and when on wing the white of the wings is beautifully contrasted with the dark hue of the rest of its plumage. It dives with as much agility as the Eider or the American Scoter, and, when wounded, is equally difficult to be caught, nor can it be killed with certainty without a heavy shot.

The Velvet Ducks enter the bays and estuaries to a greater distance than the Eiders. On land they move with more difficulty than those birds, and keep themselves in a more erect attitude, like that in which I have endeavoured to represent the male in the plate. They swim with more buoyancy than the Eiders, but at times seem to rise from the water with considerable difficulty. Their food consists of shell-fish and crustacea, as well as sea-weeds, small fish, and spawn. Their flesh is extreme-

ly dark, tastes of fish, and is very unpalatable, *although I have seen persons of great judgment in matters of this kind not only eat it with avidity, but praise it as highly as if it were equal to the most tender and juicy venison.* They are sold in abundance in our eastern markets and those of the Middle States, at from fifty cents to a dollar the pair.

This species is, in my opinion, very closely allied to the Eider, in so much that I frequently call it the Black King-Duck. Along our coasts it commonly receives the name of White-winged Coot. The female is smaller than the male. The young much resemble the female during the first year. The white spots of the head, however, are apparent, although mottled with dusky, and their feet now shew some of the redness of those of the old males; but I am unable to say with certainty at what age they attain their full summer plumage, and the rich colouring of the bill. The Gizzard, which is not so large as that of the Eider, is of a yellow colour; the gut very large, tough, and strong, about eight feet in length.

ANAS FUSCA, Linn. Syst. Nat. vol. i. p. 196.—*Lath.* Ind. Ornith. vol. ii. p. 43.

FULIGULA FUSCA, Ch. Bonaparte, Synops. of Birds of the United States, p. 390.

OIDEMIA FUSCA, Swains. and Richards. Fauna Bor. Amer. part ii. p. 449.

VELVET DUCK, *ANAS FUSCA*, Will. Amer. Ornith. vol. viii. p. 137. pl. 92. fig. 3.

VELVET DUCK, Nuttall, Manual, vol. ii. p. 419.

Adult Male. Plate CCXLVII. Fig. 1.

Bill about the length of the head, very broad, as deep as broad at the base, depressed and flattened towards the end, which is rounded. Upper mandible with a short abrupt prominence at the base, its dorsal line on the prominence straight, at its fore edge abruptly sloping, then slightly concave, and at the end curved, the ridge on the prominence very broad and nearly flat, towards the end broadly convex, the sides convex, the edges obtuse with about thirty lamellæ, the unguis very large, and elliptical. Nostrils subbasal, elliptical, very large, pervious, nearer the ridge than the edge, and placed on the lower side of the basal prominence. Lower mandible flat, with the angle long, rather narrow, rounded, the dorsal line slightly convex, the edges with about twenty-five lamellæ, the unguis nearly circular and very large.

Head large. Eyes rather small. Neck of moderate length, thick. Body large, and much depressed. Wings rather small. Feet very short, placed rather far behind; tarsus very short, compressed, having anteriorly in its whole length a series of small scutella, and above the

outer toe a partial series, the rest covered with reticular angular scales. Hind toe small, with a free membrane beneath; anterior toes double the length of the tarsus, united by reticulated membranes having a sinus on their free margins, the inner with a lobed marginal membrane, the outer with a thick edge, the third and fourth about equal and longest. Claws small, that of first toe very small and curved, of middle toe largest, with a dilated inner edge, of the rest slender, all obtuse.

Plumage dense, soft, blended. Feathers on the fore part of the head extremely small, on the neck velvety. Wings rather short, narrow, pointed; primary quills curved, strong, tapering and pointed, the first longest, the second very little shorter, the rest rapidly graduated; secondary broad and rounded, the inner elongated and tapering. Tail very short, narrow, wedge shaped, of fourteen stiff narrow feathers.

Basal prominence and sides of the bill black, the sides towards the end bright red, the unguis flesh-colour, with a black line on each side. Iris bright yellow. Feet carmine on the outer side, orange-red on the inner, the webs greyish-black. The general colour of the plumage is brownish-black, on the upper parts glossed with blue, lighter on the lower. The outer secondary quills are white, and there is a spot of the same under the eye.

Length to end of tail 22 inches, to end of wings $19\frac{1}{4}$, to end of claws $24\frac{1}{2}$; extent of wings 39; wing from flexure 12; tail $3\frac{1}{2}$; bill $1\frac{8}{12}$, along the edge of lower mandible $2\frac{7}{12}$; tarsus $1\frac{1}{12}$; middle toe 3, its claw $\frac{5}{12}$. Weight 3 lb. 10 oz.

Adult Female. Plate CCXLVII. Fig. 2.

In the Female the basal prominence of the bill is much less elevated, and the colour of the whole bill is dusky. The iris and feet are as in the Male, but of duller tints. The general colour of the plumage is a sooty brown, the breast and abdomen lighter. There are two whitish spots on each side of the head, one near the base of the upper mandible, the other behind the eye; the outer secondary quills are white as in the Male.

Length to end of tail 22 inches, to end of wings 18, to end of claws $25\frac{1}{2}$; extent of wings 38; wing from flexure $11\frac{1}{4}$; tail $3\frac{1}{2}$; bill $1\frac{7}{12}$, along the edge of lower mandible $2\frac{7}{12}$; tarsus $1\frac{3}{4}$; middle toe $2\frac{1}{12}$, its claw $\frac{5}{12}$. Weight 3 lb. 3 oz.

The down of this species is similar to that of the Eider Duck, and apparently of equal quality.

THE PIED-BILLED DOBCHICK.

PRODICEPS CAROLINENSIS, LATH.

PLATE CCXLVIII. MALE AND FEMALE.

THERE go the little Dobchicks, among the tall rushes and aquatic grasses that border the marsh. They have seen me, and now I watch them as they sink gently backwards into the deep water, in the manner of frightened frogs. Cunning things! "Water-witches," as they call you, I clearly see your bills, although you have withdrawn all of you save those parts, and sneak off towards yon great bunch of bulrushes. Well, speed on, and may safety attend you! Nature has granted you means of eluding your enemies, and I am heartily glad to see that you have profited by her instructions. I know you can fly too. How happy must you be, to be thus enabled to migrate through the air, instead of being obliged to labour for months with your curiously scolloped feet, in removing from one country to another, as *authors* say you do. Ah! you have reached a small secluded pool, where you intend to breed in peace and security; there you are, collecting rushes and weeds to form a large matted bed, on which you intend to deposit your pearly eggs. Labour on, mind me not, I am a true friend and admirer of your race. I see that among these plants you have fixed your tenement, in which there will soon be five eggs, which, although tinged with green, will look as if pure white. I wish I knew how many days of constant heat from your bodies it will require to hatch them. Some other time perhaps you may tell me. Miniatures of yourselves I now see swimming gaily, skipping, springing, gliding, dipping, just like yourselves. So, you snatch the crawling bug, and gorge yourselves with leeches, fish, and herbage. How fast your young ones grow, changing from downy to hairy, and again to feathery and silky. On winglets they now cross the clear pool, and crawl on the opposite shore, there enjoying the warmth of the bright sunbeams. September has come; plump and strong seven of you there are; the evening is calm and beautiful; you spread out your wings, reach with some difficulty a proper height, and swift as meteors glide through the air, until, meeting with warmer waters, you alight on them, and there remain for a season.

The Pied-billed Dobchick may be met with in almost every part of the United States, at one season or other : in the south and west during autumn and winter, in the east and north-west in spring and summer, mostly on fresh waters of all descriptions, yet when these are covered with ice, on bays and estuaries, where it searches for shrimps and fry, although under other circumstances such haunts are not congenial to it. It is found in New Brunswick and Nova Scotia, but I did not meet with it in Labrador or Newfoundland.

I had the good fortune, on the 28th of June, to stumble upon a nest of this bird near the banks of the Wabash river, above Vincennes. It was large for the bird, raised several inches above the muddy and reedy shores of a pond, only a few feet from the water, and composed of decayed weeds, rushes, and earth. On being discovered, the sitting bird slid over the mud, along a path that led directly to the water, in which it immediately dived, and I saw no more of it for about twenty minutes. The eggs, which were five, measured an inch and a quarter, by seven and a half-eighths, were smooth, rather rounded, and of a light greenish-white colour. On breaking one of them, I found it to contain a chick considerably advanced, which induced me to leave the rest untouched, and before I departed I saw the bird, which I believed to be the female, swimming low at a distance. I watched it for some time, but could not discover another, and walked away to allow it to resume its occupation. The nest was fixed among the stalks of strong reeds, but was not attached to any of them. In the month of August, while on the Cayuga lakes, I saw one of these birds with a brood of young about half grown, but could not obtain a single specimen, as they dived with extreme quickness, and eluded all pursuit.

Few birds plunge with more rapidity than this species, which, during submersion, employs its wings, as I had an opportunity of observing while some were passing under a boat when I was in pursuit of them. On the water it is almost impossible to catch them, unless they have been injured in the wing, when they are unable to dive without difficulty. The curious habit which they have of sinking gradually backward in the water, at the sight of an enemy, is very pleasing to observe. Not a ripple do they leave on the spot where they have disappeared, and one unacquainted with them can hardly conceive that a bird could have escaped in so dexterous a manner. My friend THOMAS MACCULLOCH gave me an account of one which, having been observed on a small mill-dam, was pursued by

the miller's sons, who, after chasing it fully an hour, could not even drive it on shore. Their father, however, who was as anxious as themselves to see the curious creature, drained the pond, when the little thing was seen crawling over the mud in a manner not unlike that of a turtle. It was now easily caught, as it was not able to rise on wing, the species, it seems, being incapable of springing from the ground, and was afterwards given to my young friend, who presented it beautifully prepared to me.

While I was at Philadelphia, my learned and staunch friend Dr RICHARD HARLAN, received two Pied-billed Grebes alive, which had been caught in a fishing-net on Brandywine Creek. We placed them in a large tub of water, where we could see all their subaqueous movements. They swam round the sides of the tub in the manner of the Puffin, moving their wings in accordance with their feet, and continued so a much longer time than one could suppose it possible for them to remain under water, coming up to breathe, and plunging again with astonishing celerity. When placed on the carpet, they ran awkwardly half erect, for a distance of a few feet, tumbled over, and scrambled along with the aid of their wings. Nothing could induce them to eat, and after a day or two of captivity, the little creatures were taken to the Delaware, and set at liberty.

This bird retires to rest on the floating beds of rushes met with in ponds, or on the edges of the shores; and in such places you may see it sitting upright, and dressing its plumage in the sunshine. They are extremely unwilling to rise on wing, unless during their migrations, or when chasing each other at the pairing season, which commences in March, when they manifest a good deal of pugnacity. On such occasions, the males fly, dive, and rise again on wing, in the manner of the Foolish Guillemot. While travelling, they pass rapidly through the air, at times at a considerable elevation, when the movements of their wings produce a sound like that of a hawk stooping on its prey. They are seldom found in parties of more than six or seven. The idea of their migrating by water is quite absurd. How long would it take a Dobchick to swim from the mouths of the Mississippi to the head waters of the Ohio; and when arrived there, after six or seven weeks of constant paddling, how is he to proceed farther? Yet it is well known that they breed farther north, and are general on the southern waters early in October.

The food of the Pied-billed Dobchick consists of small fry, plants, seeds, aquatic insects, and snails; along with which they swallow gravel. On opening several individuals, in different parts of the Union, I observed in

their gizzards a quantity of hair and feather-like substance, for which I could not account, but which I at length found to be the down of certain plants, such as thistles, the seeds remaining undigested and attached to it. My friend THOMAS MACCULLOCH made the same observation on examining some at Pictou in Nova Scotia, and I have found similar substances in the stomach of many individuals of *Podiceps cristatus*.

The Pied-billed Dobchicks seem to form particular attachments to certain ponds or small lakes, where, until they are closed by ice, you may always observe a pair or a family. Opposite Henderson I regularly saw a couple every autumn, and my friend the Reverend JOHN BACHMAN has observed a group of them for many winters in a small pond a few miles distant from Charleston. They seem to have a dislike to swift-running streams, and when on them keep to the eddies along the shores. The curious double pectination on the hind part of their tarsi, seems to aid them greatly while sitting upright on the broad leaves of water-lilies, on the surface of which I have observed indented impressions after the birds had plunged into the water from them. The young differ in colour from the adult, but the old males and females resemble each other, only the former are larger.

PODICEPS CAROLINENSIS, Lath. Ind. Ornith. vol. ii. p. 785.—Ch. Bonaparte, Synops. of Birds of the United States, p. 418.—Swains. and Richards. Fauna Bor. Amer. part ii. p. 412.

PIED-BILL DOBCHICK, Nuttall, Manual, vol. ii. p. 259.

Adult Male. Plate CCXLVIII. Fig. 1.

Bill shorter than the head, stout, deep, compressed, tapering. Upper mandible with the dorsal line nearly straight at the base, curved towards the end, the ridge slightly flattened for a short space at the base, narrow in the rest of its extent, the sides convex towards the end, the edges sharp, inflected, the tip obtuse, a little decurved. Nasal groove broad, and extending beyond the middle of the mandible; nostrils elliptical, lateral, sub-medial, pervious. Lower mandible with the angle long and narrow, the sides nearly erect, but convex, the dorsal line very short and sloping upwards, the edges inflected, the tips narrow, the gape-line nearly straight.

Head rather small, oblong, compressed; neck rather long; body depressed. Feet placed far behind, short, stout; tibia bare for a very short space below; tarsus short, much compressed, thin before and behind, an-

teriorly scutellate, on the sides with large scutelliform scales, posteriorly rough, with a double row of very small scales. Hind toe very small and situated high; fourth toe longest, third a little shorter, second much shorter; anterior toes connected by webs, which beyond the second joint are slit and rounded, the outer edges of the second and fourth furnished with broad lobed membranes; the lobes are marked with parallel grooves, directed a little forwards. Claws of fore toes depressed, that of middle toe resembling a human nail.

Plumage blended, on the forehead with stiff enlarged shafts, as in the Rails, on the back shining and rather hard, as well as on the lower part of the neck anteriorly and laterally, on the rest of the lower parts glossy and hair-like. Wings very small; primary quills curved, the second longest, first slightly shorter, third longer than first; secondary short, broad, rounded, the inner elongated and more tapering. Tail a slight tuft of loose feathers.

Bill pale blue, upper mandible dusky along the ridge, and with the lower having a black spot beyond the middle. Iris brown. Feet greyish-black. Upper part of the head and the throat black; neck and sides of the head light greyish-brown, the stiff edges of the feathers on the lower part and sides of the neck greyish-yellow; back brownish-black, as are the inner secondaries; the outer light brown, with a reddish-white spot on the end of the inner web; primaries light brown, dusky at the end. The breast is silvery white, the abdomen brownish-grey, and the sides mottled with the same.

Length to end of tail 14 inches, to end of wings 12, to end of claws 18; extent of wings 23: wing from flexure $4\frac{1}{2}$; bill along the ridge $1\frac{9}{16}$; along the edge of lower mandible $1\frac{4}{16}$; tarsus $1\frac{5}{16}$; middle toe 2, its claw $\frac{4}{16}$. Weight 15 oz.

Adult Female. Plate CCXLVIII. Fig. 2.

The Female wants the black band on the bill; but is in other respects nearly similar to the male. Weight 13 oz.

THE TUFTED PUFFIN.

MORMON CIRRHATUS, TEMM.

PLATE CCXLIX. MALE.

THE specimen from which I drew the figure of this singular looking bird, was procured at the mouth of the Kennebeck River, in Maine. It was shot by a fisherman gunner, while standing on some floating ice, in the winter of 1831-32. No other individual was seen. I could not obtain any information respecting its habits; but as the bird was in tolerable order, I hope that my figures of it will prove not unacceptable. It was a male, and appeared to be adult. My friend, the Prince of Musignano, mentions this species as being an inhabitant of the seas between North America and Kamtschatka, being, he adds, often found on the western coasts of the United States in winter.

ALCA CIRRHATA, *Lath.* Ind. Ornith. vol. ii. p. 791.

MORMON CIRRHATUS, *Ch. Bonaparte*, Synops. of Birds of the United States, p. 429.

TUFTED MORMON OR PUFFIN, *Nuttall*, Manual, vol. ii. p. 539.

Adult Male. Plate CCXLIX. Fig. 1, 2.

Bill about the length of the head, nearly as high as long, extremely compressed, at the base as high as the head, furrowed on the sides. Upper mandible with a horny rim along the basal margin, its dorsal line convex to the middle, or along the extent of a long, narrow, rounded dorsal prominence, which extends from the base to the first groove, afterwards curved in the fourth of a circle, the ridge narrow, in its basal half rounded, narrower and rather sharp towards the end, the sides slightly convex, and marked with four curved transverse grooves, between the nostril and the tip, the edges rather blunt, nearly straight until close to the decurved, narrow, obtuse tip. The basal rim is scrobiculate, the rest of the mandible smooth. The nostrils are linear, direct, close to the edge, and near the base. Lower mandible with the angle extremely short and narrow, the dorsal line nearly straight and ascending, the sides slightly concave, without grooves, the ridge narrow but convex, the tip very narrow, ob-

liquely truncate. The gape extends downwards a little beyond the base of the bill, and is furnished with a soft corrugated extensible membrane.

Head large, oblong, anteriorly compressed; eye of moderate size, with the edges of the eyelids bare; neck short and thick; body full and rounded. Feet short, rather stout; tibia bare for a short space above the joint; tarsus very short, anteriorly with a series of small scutella, the rest with small roundish scales. Hind toe wanting; toes of moderate length, rather slender, scutellate above, connected by reticulated entire membranes, the third toe longest, the fourth little shorter, the second considerably shorter, with a narrow marginal web. Claws strong, of moderate length, compressed, arched, that of the inner toe much curved, of the middle toe with a thin inner edge.

Plumage close, blended, soft, very short on the head, where, however, along a line over and behind the eye, there is on each side a tuft of long, very slender, acute incurved feathers, of a shining hair-like texture. Wings rather short, curved, narrow, acute; primary quills narrow, incurved, first longest, second slightly shorter, the rest rapidly graduated; secondaries very short, small and rounded. Tail very short, slightly rounded, of sixteen narrow rounded decurved feathers.

Bill light yellowish-red, the basal rim and the ridge towards the end of the upper mandible bright red, as is the edge of the eyelids. Iris light blue. Feet bright red; webs of a deeper tint; claws black. Sides of the head white; upper part brownish-black; the elongated feathers behind the eye pale yellow. The general colour of the upper parts is brownish-black, glossed with blue, of the lower deep purplish-brown.

Length to end of tail 15 inches, to end of wings 14, to end of claws 14; extent of wings $22\frac{1}{2}$; wing from flexure $8\frac{1}{4}$; tail $2\frac{1}{4}$; bill along the ridge $2\frac{3}{4}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $1\frac{2}{3}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$.

THE ARCTIC TERN,

STERNA ARCTICA, TEMM.

PLATE CCL. MALE.

LIGHT as a sylph, the Arctic Tern dances through the air above and around you. The graces, one might imagine, had taught it to perform those beautiful gambols which you see it display the moment you approach the spot which it has chosen for its nest. Over many a league of ocean has it passed, regardless of the dangers and difficulties that might deter a more considerate traveller. Now over some solitary green isle, a creek or an extensive bay, it sweeps, now over the expanse of the boundless sea; at length it has reached the distant regions of the north, and amidst the floating icebergs stoops to pick up a shrimp. It betakes itself to the borders of a lonely sand-bank, or a low rocky island; there side by side the males and the females alight, and congratulate each other on the happy termination of their long journey. Little care is required to form a cradle for their progeny; in a short time the variegated eggs are deposited, the little Terns soon burst the shell, and in a few days hobble towards the edge of the water, as if to save their fond parents trouble; feathers now sprout on their wings, and gradually invest their whole body; the young birds at length rise on wing, and follow their friends to sea. But now the brief summer of the north is ended, dark clouds obscure the sun, a snow-storm advances from the polar lands, and before it skim the buoyant Terns, rejoicing at the prospect of returning to the southern regions.

The day after our arrival at the Magdaleine Islands, the weather was beautiful, although a stiff breeze blew from the south-west. I landed with my party at an early hour, and we felt as if at a half-way house on our journey from Nova Scotia to Labrador. Some of us ascended the more elevated parts of those interesting islands, while others walked along the shores. A clean sand-beach lay before us, and we proceeded over it, until having reached a kind of peninsula, we were brought to a stand. The Piping Plover ran and flew swiftly before us, emitting its soft and mellow notes, while some dozens of Arctic Terns were plunging into the waters, capturing a tiny fish or shrimp at every dash. Until that

moment this Tern had not been familiar to me, and as I admired its easy and graceful motions, I felt agitated with a desire to possess it. Our guns were accordingly charged with mustard-seed shot, and one after another you might have seen the gentle birds come whirling down upon the waters. But previous to this I had marked their mode of flight, their manner of procuring their prey, and their notes, that I might be able to finish the picture from life. Alas, poor things ! how well do I remember the pain it gave me, to be thus obliged to pass and execute sentence upon them. At that very moment I thought of those long-past times, when individuals of my own species were similarly treated ; but I excused myself with the plea of necessity, as I recharged my double gun. As soon as a sufficient number of males and females lay dead at our feet, we retired from the water's edge, to watch the motions of the survivors, among whom confusion and dismay prevailed, as they dashed close over our heads, and vociferated their maledictions. We did not, however, depart until we had tried a curious experiment for the third time. A female had been shot, and lay dead on the water for a considerable while. Her mate, whom I was unwilling to destroy, alighted upon her, and attempted to caress her, as if she had been alive. The same circumstance took place three different times, on our throwing the dead bird on the water. Something of the same nature I have related in my article on the Wild Turkey. All this happened in the month of June 1833, when none of the Arctic Terns had yet produced eggs, although we found them nearly ready to lay, as were the Piping Plovers.

Our schooner now sailed onward, and carried us to the dreary shores of Labrador. There, after some search, we met with a great flock of Arctic Terns breeding on a small island slightly elevated above the sea. Myriads of these birds were there sitting on their eggs. The individuals were older than those which we had seen on the Magdeleine Islands ; for the more advanced in life the individuals of any species are, the more anxious are they to reproduce, the sooner do they proceed to their summer residence, and the more extensive is the range of their migration northward. On the other hand, the younger the bird is, the farther south it removes during winter, both because it thus enjoys a milder climate, and requires less exertion in procuring its food ; whereas the older individuals not only have a stronger constitution, but are more expert in discovering and securing their prey, so that it is not necessary for them to extend their journey so far.

The Arctic Tern is found with us on the eastern coasts of the United States only, where it appears, from the shores of New Jersey northwards, in autumn, and whence it departs in early spring. No sooner have the winter tempests subsided, than it is observed gliding along the coast, together with many other birds. In the beginning of March, you see it following the sinuosities of the shores, some passing directly from the Sable Islands off the Bay of Fundy and Newfoundland into Baffin's Bay; others, younger, and unwilling to encounter the perils of a more extended flight, passing up the Gulf of St Lawrence, either through the Straits of Cansso, or the broader channel between Cape Breton and Newfoundland, and betaking themselves to the Magdaleine Islands and the coasts of Labrador.

While at American Harbour in June 1833, my son and some of his companions met with a low rocky island, on which hundreds of these Terns had deposited their eggs. No other species was seen there; the birds were mostly sitting, and, on the landing of the party, they all rose as if in the greatest consternation, hovered over their heads, and left their eggs to the mercy of the intruders who carried off a basketful of them, with a few of the birds themselves.

On the 18th of the same month, the Arctic Terns were found breeding on another island in considerable numbers; many dozens of their eggs were gathered, and delicious food indeed they proved to be. The full number of their eggs is three, but as it was early in the season many had only two. Their average dimensions were an inch and a quarter in length, and five-eighths in their greatest breadth; they were oval, but rather sharp at the smaller ends; their ground-colour a light-olive, irregularly covered with patches of dark umber, larger towards the round end. They were deposited on the rocks wherever there was any grass, but no nest had been formed for their reception. They differed extremely in their colour, indeed quite as much as those of the Sandwich Tern. As we approached the little island, they all rose in the air, and flew high over our heads, screaming loudly, which they continued to do until we left the place. Several were shot, and as each fell the rest immediately plunged through the air after it. Whenever one was wounded so slightly as to be able to make off, it was lost to us, and the rest followed it. Only a very few of those which we saw and shot had the bill entirely red, and those which had were evidently older birds. Some exhibited a considerable portion of the point tinged with brownish-black, yet all of them

could easily be distinguished from the *Sterna Hirundo*, first by their smaller size, shorter tarsi, more delicate bill, and greater curvature of the outer part of their wings; and secondly, by the leaden tint of their lower parts, from the neck to the tail, those parts in *Sterna Hirundo* being pure white. The back is also of a deeper blue in the Arctic Tern. The long tail-feathers were much shorter in the females than in the males, but M. TEMMINCK is wrong in saying that this bird has the tail proportionally longer than that of other species, the Roseate Tern having it of much greater length, considering its diminutive size.

At the beginning of the first autumn, the plumage of the young so much resembles that of the young of *Sterna Hirundo*, that a person, not paying attention to the tarsi and feet, might readily confound them together. Yet even at this early age, there are strong indications of the bluish tint on the under parts. The longest tail-feathers at this period do not extend more than two inches beyond the rest; the upper parts of the body are mottled with brown, as in all the other species, and in Gulls. The mantle of this, as of all other Terns, assumes its permanent hue before any part of the wings. On the 5th of August, in Labrador, the young birds were gambolling along with their parents, over the shores of Bras d'Or Harbour, and when we left that country the Terns still remained, so that I am unable to state at what particular period they commence their journey southward.

The notes of this species resemble the syllables *creek, creek*, and are often repeated while the bird is on wing. During autumn it follows the sinuosities of the shores of the bays and inlets, ascending against the ebb, and, returning to meet the tide, which enables it to procure its food in succession while it keeps on its course. I have only farther to mention a curious fact, which is, that all the Terns which breed in the northern parts of the United States, and in regions still nearer the pole, sit closely on their eggs, while the small species that breed to the southward incubate only during night, or in rainy weather.

STERNA ARCTICA, *Temm. Man. d'Ornith.* part ii. p. 742.—*Ch. Bonaparte*, *Synops. of Birds of the United States*, p. 354.—*Swains. and Richards. Fauna Bor. Amer.* part ii. p. 414.

ARCTIC TERN, *Nuttall, Manual*, vol. ii. p. 275.

Adult Male in Spring. Plate CCL.

Bill about the same length as the head, slender, tapering, compressed, nearly straight, very acute. Upper mandible with the *do*

ly arched, the ridge rather broad and convex at the base, narrow towards the end, the sides convex, the edges sharp and inflected, the tip acute. Nasal groove extended beyond the nostrils nearly to the tip; nostrils basal, linear, direct, pervious. Lower mandible with the angle extremely narrow, very acute, extending beyond the middle, the dorsal line straight, the sides erect and slightly convex, the sharp edges inflected, the tip extremely acute.

Head of moderate size, oblong; neck of moderate length; body very slender. Feet very small; tibia bare for a considerable space; tarsus extremely short, slender, roundish, covered anteriorly with small scutella, laterally and behind with reticular scales; toes very small, slender, the first extremely small, the third longest, the fourth nearly as long, the second much shorter, all scutellate above, the anterior connected by reticulated webs having a concave margin; claws arched, compressed, acute, that of hind toe smallest, of middle toe by much the largest, and having the inner edge thin and dilated.

Plumage soft, close, blended, very short on the fore part of the head; the feathers in general broad and rounded. Wings very long, narrow and pointed; primary quills tapering, slightly curved inwards, the first longest, the rest rapidly graduated; secondary short, broad, incurved, rounded, the inner more tapering. Tail long, very deeply forked, of twelve feathers, of which the outer are tapering, the middle short and rounded.

Bill, mouth, and feet vermilion tinged with carmine. Iris brown. The upper part of the head and elongated occipital feathers greenish-black; the sides of the head and chin white; the upper parts pale greyish-blue, the rump lighter, the tail white, excepting the outer webs of the two lateral feathers which are dusky grey, primaries dusky towards the ends, the two outer with their outer webs blackish, all with the greater part of the inner web white; secondaries tipped with white. Neck, breast and sides pale greyish-blue, like the upper parts, but lighter; abdomen, under tail-coverts, and lower surfaces of wings and tail white.

Length to end of tail $15\frac{1}{2}$ inches, to end of wings $13\frac{1}{2}$, to end of claws $9\frac{1}{4}$; extent of wings 32; wing from flexure $10\frac{1}{2}$; tail to end of shortest feathers $3\frac{1}{4}$, to end of longest $7\frac{1}{2}$; bill along the ridge $1\frac{1}{4}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $\frac{2}{3}$; middle toe $\frac{1}{2}$, its claw $\frac{1}{4}$. Weight $2\frac{3}{4}$ oz.

A TOUGH WALK FOR A YOUTH.

ABOUT twelve years ago I was conveyed, along with my son VICTOR, from Bayou Sarah to the mouth of the Ohio, on board the steamer *Magnet*, commanded by Mr M'KNIGHT, to whom I here again offer my best thanks for his attentions. The very sight of the waters of that beautiful river filled me with joy as we approached the little village of Trinity, where we were landed along with several other passengers, the water being too low to enable the vessel to proceed to Louisville. No horses could be procured, and as I was anxious to continue my journey without delay, I consigned my effects to the care of the tavern-keeper, who engaged to have them forwarded by the first opportunity. My son, who was not fourteen, with all the ardour of youth, considered himself able to accomplish on foot the long journey which we contemplated. Two of the passengers evinced a desire to accompany us, "provided," said the tallest and stoutest of them, "the lad can keep up. My business," he continued, "is urgent, and I shall push for Frankfort pretty fast." Dinner, to which we had contributed some fish from the river, being over, my boy and I took a ramble along the shores of Cash Creek, on which some years before I had been detained several weeks by ice. We slept at the tavern, and next morning prepared for our journey, and were joined by our companions, although it was past twelve before we crossed the creek.

One of our fellow-travellers, named ROSE, who was a delicate and gentlemanly person, acknowledged that he was not a good walker, and said he was glad that my son was with us, as he might be able to keep up with the lively youth. The other, a burly personage, at once pushed forward. We walked in Indian file along the narrow track cut through the canes, passed a wood-yard, and entered the burnt forest, in which we met with so many logs and briars, that we judged it better to make for the river, the course of which we followed over a bed of pebbles, my son sometimes a-head, and again falling back, until we reached America, a village having a fine situation, but with a shallow approach to the shore. Here we halted at the best house, as every traveller ought to do, whether pedestrian or equestrian, for he is there sure of being well treated, and will not have more to pay than in an inferior place. Now we constituted Mr ROSE

purser. We had walked twelve miles over rugged paths and pebbly shores, and soon proceeded along the edge of the river. Seven tough miles ended, we found a house near the bank, and in it we determined to pass the night. The first person we met with was a woman picking cotton in a small field. On asking her if we might stay in her cabin for the night, she answered we might, and hoped we could make a shift with the fare on which she and her husband lived. While she went to the house to prepare supper, I took my son and Mr Rose to the water, knowing how much we should be refreshed by a bath. Our fellow-traveller refused, and stretched himself on a bench by the door. The sun was setting; thousands of robins were flying southward in the calm and clear air; the Ohio was spread before us smooth as a mirror, and into its waters we leaped with pleasure. In a short time the goodman of the hut called us to supper, and in a trice we were at his heels. He was a tall raw-boned fellow, with an honest bronzed face. After our frugal meal, we all four lay down in a large bed spread on the floor, while the good people went up to a loft.

The woodsman having, agreeably to our instructions, roused us at day-break, told us that about seven miles farther we should meet with a breakfast much better than the last supper we had. He refused any pecuniary compensation, but accepted from me a knife. So we again started. My dear boy appeared very weak at first, but soon recovered, and our stout companion, whom I shall call S., evidently shewed symptoms of lassitude. On arriving at the cabin of a lazy man blessed with an industrious wife and six healthy children, all of whom laboured for his support, we were welcomed by the woman, whose motions and language indicated her right to belong to a much higher class. Better breakfast I never ate: the bread was made of new corn ground on a tin-grater by the beautiful hands of our blue-eyed hostess; the chickens had been prepared by one of her lovely daughters; some good coffee was added, and my son had fresh milk. The goodwoman, who now held a babe to her bosom, seemed pleased to see how heartily we all ate; the children went to work, and the lazy husband went to the door to smoke a corn-cob pipe. A dollar was put into the ruddy hand of the chubby urchin, and we bade its mother farewell. Again we trudged along the beach, but after a while betook ourselves to the woods. My son became faint. Dear boy! never can I forget how he lay exhausted on a log, large tears rolling down his cheeks. I bathed his temples, spoke soothingly to him, and chancing to see a fine

turkey cock run close by, directed his attention to it, when, as if suddenly refreshed, he got up and ran a few yards towards the bird. From that moment he seemed to acquire new vigour, and at length we reached Wilcox's, where we stopped for the night. We were reluctantly received at the house, and had little attention paid to us, but we had a meal and went to bed.

The sun rose in all its splendour, and the Ohio reflected its ruddy beams. A finer view of that river can scarcely be obtained than that from the house which we were leaving. Two miles through intricate woods brought us to Belgrade, and having passed Fort Massacre, we halted and took breakfast. S. gave us to understand that the want of roads made travelling very unpleasant; he was not, he added, in the habit of "skulking through the bushes or tramping over stony bars in the full sunshine," but how else he had travelled was not explained. Mr Rose kept up about as well as Victor, and I now led the way. Towards sunset we reached the shores of the river, opposite the mouth of the Cumberland. On a hill, the property of a Major B., we found a house, and a solitary woman, wretchedly poor, but very kind. She assured us, that if we could not cross the river, she would give us food and shelter for the night, but said that as the moon was up, she could get us put over when her skiff came back. Hungry and fatigued we laid us down on the brown grass, waiting either a scanty meal, or the skiff that was to convey us across the river. I had already grated the corn for our supper, run down the chickens, and made a fire, when a cry of "Boat coming" roused us all. We crossed half of the Ohio, walked over Cumberland Isle, and after a short ferry found ourselves in Kentucky, the native land of my beloved sons. I was now within a few miles of the spot where, some years before, I had a horse killed under me by lightning.

It is unnecessary to detain you with a long narrative, and state every occurrence until we reached the banks of Green River. We had left Trinity at 12 o'clock of the 15th October, and on the morning of the 18th four travellers descending a hill, were admiring the reflection of the sun's rays on the forest-margined horizon. The frost which lay thick on the ground and the fences, glittered in the sheen, and dissolved away; all nature seemed beautiful in its calm repose; but the pleasure which I felt on gazing on the scene was damped by the fatigue of my son, who now limped like a lamed turkey, although, as the rest of the party were not much better off, he smiled, straightened himself, and strove to keep

up with us. Poor S. was panting many yards behind, and was talking of purchasing a horse. We had now, however, a tolerably good road, and in the evening got to a house where I inquired if we could have a supper and beds. When I came out, VICTOR was asleep on the grass, Mr ROSE looking at his sore toes, and S. just finishing a jug of monongahela. Here we resolved that, instead of going by Henderson, we should take a cut across to the right, and make direct for Smith's Ferry, by way of Highland Lick Creek.

Next day we trudged along, but nothing very remarkable occurred excepting that we saw a fine black wolf quite tame and gentle, the owner of which had refused a hundred dollars for it. Mr ROSE, who was an engineer, and a man of taste, amused us with his flageolet, and frequently spoke of his wife, his children, and his fireside, which increased my good opinion of him. At an orchard we filled our pockets with October peaches, and when we came to Trade Water River we found it quite low. The acorns were already drifted on its shallows, and the Wood Ducks were running about picking them up. Passing a flat bottom, we saw a large Buffalo Lick. Where now are the bulls which erst scraped its earth away, bellowing forth their love or their anger?

Good Mr ROSE's feet became sorer and sorer each succeeding day; Mr S. at length nearly gave up; my son had grown brisker. The 20th was cloudy, and we dreaded rain, as we knew the country to be flat and clayey. In Union County, we came to a large opening, and found the house of a Justice, who led us kindly to the main road, and accompanied us for a mile, giving us excellent descriptions of brooks, woods and barrens, notwithstanding which we should have been much puzzled, had not a neighbour on horseback engaged to shew us the way. The rain now fell in torrents, and rendered us very uncomfortable, but at length we reached Highland Lick, where we stumbled on a cabin, the door of which we thrust open, overturning a chair that had been placed behind it. On a dirty bed lay a man, a table with a journal or perhaps a ledger before him, a small cask in a corner near him, a brass pistol on a nail over his head, and a long Spanish dagger by his side. He rose and asked what was wanted. "The way to a better place, the road to SUGGS's." "Follow the road, and you'll get to his house in about five miles!" My party were waiting for me, warming themselves by the fires of the salt-kettles. The being I had seen was an overseer. By-and-by we crossed a creek; the

country was hilly, clayey and slippery ; Mr S. was cursing, Rose limped like a lame duck, but Victor kept up like a veteran.

Another day, kind Reader, and I shall for a while shut my journal. The morning of the 21st was beautiful ; we had slept comfortably at SUGGS's, and we soon found ourselves on pleasant barrens, with an agreeable road. ROSE and S. were so nearly knocked up, that they proposed to us to go on without them. We halted and talked a few minutes on the subject, when our companions stated their resolution to proceed at a slower pace. So we bade them adieu. I asked my son how he felt ; he laughed and quickened his steps ; and in a short time our former associates were left out of sight. In about two hours we were seated in the Green River ferry-boat, with our legs hanging in the water. At Smith's Ferry this stream looks like a deep lake ; and the thick cane on its banks, the large overhanging willows, and its dark green waters, never fail to form a fine picture, more especially in the calm of an autumnal evening. Mr SMITH gave us a good supper, sparkling cider, and a comfortable bed. It was arranged that he should drive us to Louisville in his dearborne ; and so here ended our walk of two hundred and fifty miles. Should you wish to accompany us during the remainder of our journey, I have only to refer you to the article " Hospitality in the Woods," which you will find in a former volume.

THE BROWN PELICAN.

PELECANUS FUSCUS, LINN.

PLATE CCLI. MALE.

THE Brown Pelican, which is one of the most interesting of our American birds, is a constant resident in the Floridas, where it resorts to the Keys and the salt-water inlets, but never enters fresh-water streams, as the White Pelican is wont to do. It is rarely seen farther eastward than Cape Hatteras, but is found to the south far beyond the limits of the United States. Within the recollection of persons still living, its numbers have been considerably reduced, so much indeed that in the inner Bay of Charleston, where twenty or thirty years ago it was quite abundant, very few individuals are now seen, and these chiefly during a continuance of tempestuous weather. There is a naked bar, a few miles distant from the main land, between Charleston and the mouth of the Santee, on which my friend JOHN BACHMAN some years ago saw a great number of these birds, of which he procured several; but at the present day, few are known to breed farther east than the salt-water inlets running parallel to the coast of Florida, forty or fifty miles south of St Augustine, where I for the first time met with this Pelican in considerable numbers.

My friend JOHN BULLOW, Esq. took me in his barge to visit the Halifax, which is a large inlet, and on which we soon reached an island where the Brown Pelicans had bred for a number of years, but where, to my great disappointment, none were then to be seen. The next morning, being ten or twelve miles farther down the stream, we entered another inlet, where I saw several dozens of these birds perched on the mangroves, and apparently sound asleep. I shot at them from a very short distance, and with my first barrel brought two to the water, but although many of them still remained looking at us, I could not send the contents of my second barrel to them, as the shot had unluckily been introduced into it before the powder. They all flew off one after another, and still worse, as the servants approached those which had fallen upon the water, they also flew away.

On arriving at the Keys of Florida, on board the Marion Revenue Cutter, I found the Pelicans pretty numerous. They became more abun-

dant the farther south we proceeded, and I procured specimens at different places, but nowhere so many as at Key West. There you would see them flying within pistol-shot of the wharfs, the boys frequently trying to knock them down with stones, although I believe they rarely succeed in their efforts. The Marion lay at anchor several days at a short distance from this island, and close to another. Scarcely an hour of daylight passed without our having Pelicans around us, all engaged at their ordinary occupations, some fishing, some slumbering as it were on the bosom of the ocean, or on the branches of the mangroves. This place and all around for about forty miles, seemed to be favourite resorts of these birds; and as I had excellent opportunities of observing their habits, I consider myself qualified to present you with some account of them.

The flight of the Brown Pelican, though to appearance heavy, is remarkably well sustained, that bird being able not only to remain many hours at a time on wing, but also to mount to a great height in the air to perform its beautiful evolutions. Their ordinary manner of proceeding, either when single or in flocks, is by easy flappings and sailings alternating at distances of from twenty to thirty yards, when they glide along with great speed. They move in an undulated line, passing at one time high, at another low, over the water or land, for they do not deviate from their course on coming upon a key or a point of land. When the waves run high, you may see them "troughing," as the sailors say, or directing their course along the hollows. While on wing they draw in their head between their shoulders, stretch out their broad webbed feet to their whole extent, and proceed in perfect silence.

When the weather is calm, and a flood of light and heat is poured down upon nature by the genial sun, they are often, especially during the love season, seen rising in broad circles, flock after flock, until they attain a height of perhaps a mile, when they gracefully glide on constantly expanded wings, and course round each other, for an hour or more at a time, after which, in curious zigzags, and with remarkable velocity, they descend towards their beloved element, and settle on the water, on large sand-bars or on mangroves. It is interesting beyond description to observe flocks of Brown Pelicans thus going through their aerial evolutions.

Now, Reader, look at those birds standing on their strong column-like legs, on that burning sand-bar. How dexterously do they wield that

great bill of theirs, as they trim their plumage ! Now along each broad quill it passes, drawing it out and displaying its elasticity ; and now with necks stretched to their full length, and heads elevated, they direct its point in search of the insects that are concealed along their necks and breasts. Now they droop their wings for a while, or stretch them alternately to their full extent ; some slowly lie down on the sand, others remain standing, quietly draw their head over their broad shoulders, raise one of their feet, and placing their bill on their back, compose themselves to rest. There let them repose in peace. Had they alighted on the waters, you might have seen them, like a fleet at anchor, riding on the ever-rolling billows as unconcernedly as if on shore. Had they perched on yon mangroves, they would have laid themselves flat on the branches, or spread their wings to the sun or the breeze, as Vultures are wont to do.

But see, the tide is advancing ; the billows chase each other towards the shores ; the mullets joyful and keen leap along the surface, as they fill the bays with their multitudes. The slumbers of the Pelicans are over ; the drowsy birds shake their heads, stretch open their mandibles and pouch by way of yawning, expand their ample wings, and simultaneously soar away. Look at them as they fly over the bay ; listen to the sound of the splash they make as they drive their open bills, like a pock-net, into the sea, to scoop up their prey ; mark how they follow that shoal of porpoises, and snatch up the frightened fishes that strive to escape from them. Down they go, again and again. What voracious creatures they are !

The Brown Pelicans are as well aware of the time of each return of the tide, as the most watchful pilots. Though but a short time before they have been sound asleep, yet without bell or other warning, they suddenly open their eyelids, and all leave their roosts, the instant when the waters, which have themselves reposed for a while, resume their motion. The Pelicans possess a knowledge beyond this, and in a degree much surpassing that of man with reference to the same subject : they can judge with certainty of the changes of weather. Should you see them fishing all together, in retired bays, be assured, that a storm will burst forth that day ; but if they pursue their finny prey far out at sea, the weather will be fine, and you also may launch your bark and go to the fishing. Indeed, most sea-birds possess the same kind of knowledge, as I have assured myself by repeated observation, in a degree correspond-

ing to their necessities ; and the best of all prognosticators of the weather, are the Wild Goose, the Gannet, the Lestria, and the Pelican.

This species procures its food on wing, and in a manner quite different from that of the White Pelican. A flock will leave their resting place, proceed over the waters in search of fish, and when a shoal is perceived, separate at once, when each, from an elevation of from fifteen to twenty-five feet, plunges in an oblique and somewhat winding direction, spreading to the full stretch its lower mandible and pouch, as it reaches the water, and suddenly scoops up the object of its pursuit, immersing the head and neck, and sometimes the body, for an instant. It immediately swallows its prey, rises on wing, dashes on another fish, seizes and devours it, and thus continues, sometimes plunging eight or ten times in a few minutes, and always with unerring aim. When gorged, it rests on the water for a while, but if it has a brood, or a mate sitting on her eggs, it flies off at once towards them, no matter how heavily laden it may be. The generally received idea that Pelicans keep fish or water in their pouch, to convey them to their young, is quite erroneous. The water which enters the pouch when it is immersed, is immediately forced out between the partially closed mandibles, and the fish, unless larger than those on which they usually feed, is instantly swallowed, to be afterwards disgorged for the benefit of the young, either partially macerated, or whole, according to the age and size of the latter. Of all this I have satisfied myself, when within less than twenty yards of the birds as they were fishing ; and I never saw them fly without the pouch being closely contracted towards the lower mandible. Indeed, although I now much regret that I did not make the experiment when I had the means of doing so, I doubt very much if a Pelican could fly at all with its burden so much out of trim, as a sailor would say.

They at times follow the porpoise, when that animal is in pursuit of prey, and as the fishes rise from the deep water towards the surface, come in cunningly for their share, falling upon the frightened shoal, and seizing one or more, which they instantly gobble up. But one of the most curious traits of the Pelican is, that it acts unwittingly as a sort of purveyor to the Gulls just as the Porpoise acts towards itself. The Black-headed Gull of WILSON, which is abundant along the coast of the Floridas in spring and summer, watches the motions of the Pelicans. The latter having plunged after a shoal of small fishes, of which it has caught a number at a time, in letting off the water from amongst them, some-

times allows a few to escape ; but the Gull at that instant alights on the bill of the Pelican, or on its head, and seizes the fry at the moment they were perhaps congratulating themselves on their escape. This every body on board the Marion observed as well as myself, while that vessel was at anchor in the beautiful harbour of Key West, so that it is not again necessary for me to lay before you a certificate with numerous signatures. To me such sights were always highly interesting, and I doubt if in the course of my endeavours to amuse you, I ever felt greater pleasure than I do at this moment, when, with my journal at my side, and the Gulls and Pelicans in my mind's eye as distinctly as I could wish, I ponder on the faculties which Nature has bestowed on animals which we merely consider as possessed of instinct. How little do we yet know of the operations of the Divine Power ! On the occasions just mentioned, the Pelicans did not manifest the least anger towards the Gulls. It is said that the Frigate Pelican or Man-of-war Bird, forces the Brown Pelican to disgorge its food, but of this I never saw an instance ; nor do I believe it to be the case, considering the great strength and powerful bill of the Pelican compared with those of the other bird. Indeed, if I had been told that when the Frigate Bird assails the Pelican, the latter opens its large pouch and swallows it entire, I might as soon have believed the one story as the other. But of this more anon, when we come to the habits of the bird in question.

On the ground this species is by no means so active, for it walks heavily, and when running, which it now and then does while in play, or during courtship, it looks extremely awkward, as it then stretches out its neck, partially extends its wings, and reels so that one might imagine it ready to fall at each step. If approached when wounded and on the water, it swims off with speed, and when overtaken, it suddenly turns about, opens its large bill, snaps it violently several times in succession, causing it to emit a smart noise in the manner of owls, strikes at you, and bites very severely. While I was at Mr BULLOW's, his Negro hunter waded after one whose wing had been broken. The Pelican could not be seized without danger, and I was surprised to see the hunter draw his butcher's knife, strike the long blade through the open pouch of the bird, hook it, as it were, by the lower mandible, and at one jerk swing it up into the air with extreme dexterity, after which he broke its neck and dragged it ashore.

The pouch measures from six to ten inches in depth, according to the

age of the bird after the first moult. The superb male whose portrait is before you, and which was selected from among a great number, had it about the last mentioned size, and capable of holding a gallon of water, were the mandibles kept horizontal. This membrane is dried and used for keeping snuff, gunpowder and shot. When fresh it may be extended so as to become quite thin and transparent, like a bladder.

This Pelican seldom seizes fish that are longer than its bill, and the size of those on which it ordinarily feeds is much smaller. Indeed, several which I examined, had in the stomach upwards of a hundred fishes, which were only from two to three inches in length. That organ is long, slender, and rather fleshy. In some I found a great number of live blue-coloured worms, measuring two and a half inches in length, and about the thickness of a crow-quill. The gut is about the size of a swan's quill, and from ten to twelve feet in length, according to the age of the individual.

At all periods the Brown Pelican keeps in flocks, seldom amounting to more than fifty or sixty individuals of both sexes, and of different ages. At the approach of the pairing time, or about the middle of April, the old males and females separate from the rest, and remove to the inner keys or to large estuaries, well furnished with mangroves of goodly size. The young birds, which are much more numerous, remain along the shores of the open sea, unless during heavy gales.

Now let us watch the full grown birds. Some skirmishes have taken place, and the stronger males, by dint of loud snappings of their bill, some hard tugs of the neck and head, and some heavy beats with their wings, have driven away the weaker, which content themselves with less prized belles. The females, although quiet and gentle on ordinary occasions, are more courageous than the males, who, however, are assiduous in their attentions, assist in forming the nest, feed their mates while sitting, and even share the labour of incubation with them. Now see the mated birds, like the citizens of a newly laid out town in some part of our western country, breaking the dry sticks from the trees, and conveying them in their bills to yon mangrove isle. You see they place all their mansions on the south-west side, as if to enjoy the benefit of all the heat of that sultry climate. Myriads of mosquitoes buzz around them, and alight on the naked parts of their body, but this seems to give them no concern. Stick after stick is laid, one crossing another, until a strong platform is constructed. Now roots and withered plants are brought,

with which a basin is formed for the eggs. Not a nest, you observe, is placed very low ; the birds prefer the tops of the mangroves, although they do not care how many nests are on one tree, or how near the trees are to each other. The eggs, of which there are never more than three, are rather elliptical, and average three inches and one-eighth in length, by two inches and one-eighth in their greatest breadth. The shell is thick and rather rough, of a pure white colour, with a few faint streaks of a rosy tint, and blotches of a very pale hue, from the centre towards the crown of the egg.

The young are at first covered with cream-coloured down, and have the bill and feet disproportionately large. They are fed with great care, and so abundantly, that the refuse of their food, putrid and disgusting, lies in great quantities round them ; but neither young nor old regard this, however offensive it may be to you. As the former grow the latter bring larger fish to them. At first the food is dropped in a well macerated state into their extended throats ; afterwards the fish is given to them entire ; and finally the parent birds merely place it on the edge of the nest. The young increase in size at a surprising rate. When half fledged they seem a mere mass of fat, their partially indurated bill has acquired considerable length, their wings droop by their sides, and they would be utterly unable to walk. The Vultures at this period often fall upon them and devour them in the absence of their parents. The Indians also carry them off in considerable numbers ; and farther eastward, on the Halifax river, for instance, the Negroes kill all they can find, to make gombo soup of them during winter. The crows, less powerful, but quite as cunning, suck the eggs ; and many a young one which has accidentally fallen from the nest, is sure to be picked up by some quadruped, or devoured by the Shark or Balacuda. When extensive depredations have thus been made, the birds abandon their breeding places, and do not return to them. The Pelicans in fact are, year after year, retiring from the vicinity of man, and although they afford but very unsavoury food at any period of their lives, will yet be hunted beyond the range of civilization, just as our best of all game, the Wild Turkey, is now, until to meet with them the student of nature will have to sail round Terra del Fuego, while he may be obliged to travel to the Rocky Mountains before he find the other bird. Should you approach a settlement of the Pelicans and fire a few shots at them, they all abandon the place, and leave their eggs or young entirely at your disposal.

At all seasons, the Negroes of the plantations on the eastern coast of the Floridas lie in wait for the Pelicans. There, observe that fellow, who, with rusty musket, containing a tremendous charge of heavy shot, is concealed among the palmettoes, on the brink of a kind of embankment formed by the shelly sand. Now comes a flock of Pelicans, forcing their way against the breeze, unaware of the danger into which they rush, for there, a few yards apart, several Negroes crouch in readiness to fire; and let me tell you, good shots they are. Now a blast forces the birds along the shore; off goes the first gun, and down comes a Pelican; shot succeeds shot; and now the Negroes run up to gather the spoil. They skin the birds like so many racoons, cut off the head, wings and feet; and should you come this way next year, you may find these remains bleached in the sun. Towards night, the sable hunters carry off their booty, marching along in Indian file, and filling the air with their extemporaneous songs. At home they perhaps salt, or perhaps smoke them; but in whatever way the Pelicans are prepared, they are esteemed good food by the sons of Africa.

The Brown Pelican is a strong and tough bird, although not so weighty as the white species. Its flesh is, in my opinion, always impure. It seems never satisfied with food, and it mutes so profusely, that not a spot of verdure can be seen on the originally glossy and deep-coloured mangroves on which it nestles; and I must say that, much as I admire it in some respects, I should be sorry to keep it near me as a pet.

During winter, when the mullets, a favourite fish with the Brown Pelican, as it is with me, retires into deeper water, these birds advance farther to seaward, and may be seen over all parts of the Gulf of Mexico, and between the Florida Reefs and the opposite isles, especially during fine weather. They are very sensible to cold, and in this respect are tender birds. Now and then, at this season, they are seen on Lake Borgne and over Lake Pontchartrain, but never on the Mississippi beyond the rise of the tides, the space higher up being abandoned to the White Pelican. The keenness of their sight is probably equal to that of any hawk, and their hearing is also very acute. They are extremely silent birds, but when excited they utter a loud and rough grunt, which is far from musical. The young take two years to attain maturity. Several persons in the Floridas assured me that the Brown Pelicans breed at all seasons of the year; but as I observed nothing to countenance such an idea, I would give it as my opinion that they raise only one brood in the season.

Their bodies are greatly inflated by large air-cells ; their bones, though strong, are very light; and they are tough to kill.

PELECANUS FUSCUS, *Linn. Syst. Nat.* vol. i. p. 215.—*Lath. Ind. Ornith.* vol. ii. p. 883.

—*C'h. Bonaparte*, *Synops. of Birds of the United States*, p. 401.

BROWN PELICAN, *Nuttall, Manual*, vol. ii. p. 476.

Adult Male. Plate CCLI.

Bill more than twice the length of the head, rather stout, straight, depressed towards the end. Upper mandible with the dorsal line straight as far as the unguis, the ridge broad and convex, separated from the side by a groove on each side, broader and more convex at the base, narrowed and flattened towards the unguis, which is curved, stout, convex above, sharp-edged, acute ; sides of the bill perpendicular at the base, narrowed towards the middle, widened and approaching to horizontal towards the end ; edges sharp, with a broad furrowed groove beneath for the reception of those of the lower mandible. Lower mandible with the angle extending to less than half an inch from the tip, and filled by a bare membrane, the sides nearly erect and convex, the edges sharp, the tip compressed, deflected, obtuse. The membrane of the lower mandible extends down the fore neck in the form of a wrinkled pouch.

Head of moderate size, oblong ; neck long, stout ; body rather slender. Feet short, stout, nearly central ; tibia bare at its lower part, covered all round with small scales ; tarsus short, stout, compressed, covered all round with hexagonal scales, of which the anterior are much larger ; toes in the same plane, all connected by reticulated webs, the first shortest, the third and fourth nearly equal, reticulate at the base, scutellate along the rest of the upper surface, claws short, strong, curved, rather acute, that of hind toe with a sharp pectinate inner edge.

Feathers of the head and neck exceedingly small and slender, of the fore part of the head stiff, hair-like and glossy ; of the upper middle part of the neck behind a little larger and soft, forming a slight longitudinal crest ; of the sides and hind part of the neck soft and downy. The feathers of the upper parts in general are remarkably small, narrow, tapering to a point ; of the lower part of the neck stiff and pointed, of the breast and sides somewhat larger than those above, and softer. Wings long, rounded ; primaries much curved, with strong square shafts ; the second longest, the third very little shorter, the first a little longer than

the fifth, secondaries very numerous, rather small, rounded, the inner longer and more tapering. Tail short, slightly rounded, of twenty-two feathers.

Bill greyish-white, tinged with brown, and marked with irregular spots of pale carmine; upper mandible dusky towards the end, lower blackish from the middle to near the end. Bare space between the bill and the eye deep blue; eyelids pink; iris white. Feet black. The gular pouch is greenish-black, the ridges of its wrinkles lighter. The hairlike feathers on the fore part of the head light yellow, the rest of the head white; a stripe of the same margining the pouch to the middle of the neck, and extending a little beyond, a short space between these two lines anteriorly, and the whole of the posterior and lateral parts of the neck of a dark chestnut brown, the small crest paler. The back and wings are dusky, each feather with the central part greyish-white; the latter colour prevails on the scapulars and larger wing-coverts. Primaries and their coverts brownish-black, secondaries greyish-brown, their outer edges greyish-white; tail light grey; the shafts of the quills and tail-feathers are white in their basal half, black towards the end. The lower parts are brownish-grey; the sides of the neck and body with narrow longitudinal white lines. On the fore neck, below the dark chestnut spot is a smaller pale yellow mark, behind which the feathers for a short space are blackish-brown.

Length to end of tail 52 inches, to end of wings 52, to end of claws $53\frac{1}{4}$; extent of wings 80; bill along the ridge $13\frac{1}{4}$, along the edge of lower mandible $14\frac{1}{4}$; depth of gular pouch 10, its extent along the neck 13; wing from flexure 24; tail 7; tarsus $2\frac{1}{2}$; middle toe $3\frac{1}{2}$, its claw $\frac{9}{16}$. Weight 6 lb. $4\frac{1}{2}$ oz.

The Female, which is considerably larger, resembles the male in colour, only that the neck is yellowish-white in its whole extent, without any brown, and its feathers are stiff and not downy as in the male. Weight 7 lb. 12 oz.

THE MANGROVE.

RHIZOPHORA MANGLE, *Linn. Syst. Nat.* vol. ii. p. 325.

The species of Mangrove represented in the plate is very abundant along the coast of Florida and on almost all the Keys, excepting the Tortugas. Those islands which are named Wet Keys are entirely formed of Mangroves, which raising their crooked and slender stems from a bed of mud, continue to increase until their roots and pendent branches afford shelter to the accumulating debris, when the earth is gradually raised above the surface of the water. No sooner has this taken place than the Mangroves in the central part of the island begin to decay, and in the course of time there is only an outer fringe or fence of trees, while the interior becomes overgrown with grass and low bushes. Meantime the Mangroves extend towards the sea, their hanging branches taking root wherever they come in contact with the bottom, and their seeds also springing up. I am at a loss for an object with which to compare these trees, in order to afford you an idea of them; yet if you will figure to yourself a tree reversed, and standing on its summit, you may obtain a tolerable notion of their figure and mode of growth. The stem, roots and branches are very tough and stubborn, and in some places the trees are so intertwined that a person might find it as easy to crawl over them as to make his way between them. They are evergreen, and their tops afford a place of resort to various species of birds at all seasons, while their roots and submersed branches give shelter to numberless testaceous mollusca and small fishes. The species represented is rarely observed on the coast of Florida of a greater height than twenty-five or thirty feet, and its average height is not above fifteen feet. The Land Mangrove, of which I have seen only a few, the finest of which were on Key West, is a tall tree, much larger and better shaped than the other, with narrower leaves and shorter fruits.

THE FLORIDA CORMORANT.

PHALACROCORAX FLORIDANUS.

PLATE CCLII. MALE.

Few birds inhabiting the United States are so little known, or have been so incorrectly described, as the Cormorants. Nay even some of the European species of this genus are yet not well understood, so imperfectly have they been studied by writers who, although they have defined their forms, have not sufficiently studied them in the places to which they resort during the breeding season. Of the three species of which I shall speak in this volume, only one has been accurately described. I allude to the Double-crested Cormorant, *P. dilophus*, which was met with by the intrepid Dr RICHARDSON in the course of his Arctic journeys, and introduced to the scientific world in the Fauna Boreali-Americana, but without a figure, a circumstance to be regretted, as good representations of birds are fully as necessary as good descriptions. When the student has perused both, he cannot fail to recognise the species in whatever part of the world he may afterwards meet with it.

Our Cormorants are by no means great travellers, although they all migrate more or less at particular seasons. The three species to which only I shall at present allude, are each restricted to a comparatively small portion of North America. The Large Cormorant, *P. Carbo*, rarely goes farther north than the southern coast of Labrador, and is seldom seen as far south as the Bay of New York. The Double-crested, *P. dilophus*, which is next in size, proceeds farther in both directions, having been met with by Dr RICHARDSON, although my amiable friend Captain JAMES CLARK ROSS, R. N. does not mention having seen any birds of this family in the course of his voyages in the arctic seas. It breeds in great numbers in Labrador, and during winter proceeds along our eastern coasts sometimes as far as Charleston in South Carolina. The Florida Cormorant, *P. floridanus*, is a constant resident in the southern parts of the country from which it derives its name, and is more especially abundant there in early spring and summer, breeding on the keys and along the salt-water inlets of the southern extremity of the peninsula, from which considerable numbers are now known to visit the waters of the Mississippi

and even of the Ohio, while others proceed as far eastward as Cape Hatteras, all returning to the Floridas on the approach of cold weather.

The Florida Cormorant seldom goes far out to sea, but prefers the neighbourhood of the shores, being found in the bays, inlets, and large rivers. I never met with one at a greater distance from land than five miles. It is at all seasons gregarious, although it is not always found in large flocks. The birds of this species never suffer others of the same genus to resort to their breeding places, although they sometimes associate with individuals belonging to different genera. The *P. Carbo* appropriates to itself the upper shelves of the most rugged and elevated rocks, whose bases are washed by the sea; *P. dilophus* breeds on flat rocky islands at some distance from the shores of the mainland; and the Florida Cormorant nestles on trees. In the many breeding places of all these species which I have visited, I never found individuals of one intermingled with those of another, although the Large Cormorant did not seem averse from having the Peregrine Falcon in its vicinity, while the Double-crested allowed a few Gannets or Guillemots to nestle beside it, and the Florida Cormorant associated with Herons, Frigate Pelicans, Grakles, or Pigeons.

This species seldom flies far over land, but follows the sinuosities of the shores or the waters of rivers, although its course towards a given point should thus be three times as long. It is the only one of the three species that, in as far as I have observed in America, alights on trees. My learned friend, the Prince of Musignano, mentions in his valuable Synopsis of the Birds of the United States, a species of Cormorant under the name of *P. Graculus*, which he describes as being when adult greenish-black, with a few scattered white streaks on the neck, in winter bronzed, and having a golden-green crest, the head, neck, and thighs with short small white feathers, and adds that it "inhabits both continents and both hemispheres: not uncommon in spring and autumn in the Middle States: very common in the Floridas, where it breeds, though very abundant in the arctic and antarctic circles." Unfortunately no dimensions are given, except of the bill, which is said to be three and a half inches long. The Florida Cormorant, however, does not at any season present these characters, and therefore conceiving it to be different from any hitherto described, I have taken the liberty of giving it a name, while the figure and description will enable the scientific to form a distinct idea of it, and thus

to confirm the species, or restore to it its previous appellation, should it have received one.

On the 26th of April 1832, I and my party visited several small Keys, not many miles distant from the harbour in which our vessel lay. Mr THRUSTON had given us his beautiful barge, and accompanied us with his famous pilot, fisherman and hunter, Mr EGAN. The Keys were separated by narrow and tortuous channels, from the surface of the clear waters of which were reflected the dark mangroves, on the branches of which large colonies of Cormorants had already built their nests, and were sitting on their eggs. There were many thousands of these birds, and each tree bore a greater or less number of their nests, some five or six, others perhaps as many as ten. The leaves, branches, and stems of the trees, were in a manner white-washed with their dung. The temperature in the shade was about 90° Fahr., and the effluvia which impregnated the air of the channels were extremely disagreeable. Still the mangroves were in full bloom, and the Cormorants in perfect vigour. Our boat being secured, the people scrambled through the bushes, in search of the eggs. Many of the birds dropped into the water, dived, and came up at a safe distance; others in large groups flew away affrighted; while a great number stood on their nests and the branches, as if gazing upon beings strange to them. But alas! they soon became too well acquainted with us, for the discharges from our guns committed frightful havoc among them. The dead were seen floating on the water, the crippled making towards the open sea, which here extended to the very Keys on which we were, while groups of a hundred or more swam about a little beyond reach of our shot, awaiting the event, and the air was filled with those whose anxiety to return to their eggs kept them hovering over us in silence. In a short time the bottom of our boat was covered with the slain, several hats and caps were filled with eggs; and we may now intermit the work of destruction. You must try to excuse these murders, which in truth might not have been nearly so numerous, had I not thought of you quite as often while on the Florida Keys, with a burning sun over my head, and my body oozing at every pore, as I do now while peaceably scratching my paper with an iron-pen, in one of the comfortable and quite cool houses of the most beautiful of all the cities of old Scotland.

The Florida Cormorant begins to pair about the first of April, and commences the construction of its nest about a fortnight after. Many do

not lay quite so early, and I found some going through their preparations until the middle of May. Their courtships are performed on the water. On the morning, beautiful but extremely hot, of the 8th of that month, while rambling over one of the Keys, I arrived at the entrance of a narrow and rather deep channel, almost covered over by the boughs of the mangroves and some tall canes, the only tall canes I had hitherto observed among those islands. I paused, looked at the water, and observing it to be full of fish, felt confident that no shark was at hand. Cocking both locks of my gun, I quietly waded in. Curious sounds now reached my ears, and as the fishes did not appear to mind me much, I proceeded onward among them for perhaps a hundred yards, when I observed that they had all disappeared. The sounds were loud and constantly renewed, as if they came from a joyous multitude. The inlet suddenly became quite narrow, and the water reached to my arm-pits. At length I placed myself behind some mangrove trunks, whence I could see a great number of Cormorants not more than fifteen or twenty yards from me. None of them, it seemed, had seen or heard me; they were engaged in going through their nuptial ceremonies. The males while swimming gracefully round the females, would raise their wings and tail, draw their head over their back, swell out their neck for an instant, and with a quick forward thrust of the head utter a rough guttural note, not unlike the cry of a pig. The female at this moment would crouch as it were on the water, sinking into it, when her mate would sink over her until nothing more than his head was to be seen, and soon afterwards both sprung up and swam joyously round each other, croaking all the while. Twenty or more pairs at a time were thus engaged. Indeed, the water was covered with Cormorants, and, had I chosen, I might have shot several of them. I now advanced slowly towards them, when they stared at me as you might stare at a goblin, and began to splash the water with their wings, many diving. On my proceeding they all dispersed, either plunging beneath or flying off, and making rapidly towards the mouth of the inlet. Only a few nests were on the mangroves, and I looked upon the spot as analogous to the tournament grounds of the Pinnated Grouse, although no battles took place in my presence. A few beautiful Herons were sitting peaceably on their nests, the mosquitoes were very abundant, large ugly blue land-crabs crawled among the mangroves, hurrying towards their retreats, and I retired, as I had arrived, in perfect silence. While proceeding I could not help remarking the in-

instinctive knowledge of the fishes, and thought how curious it was that, as soon as they had observed the Cormorants' hole, none had gone farther, as if they were well aware of the danger, but preferred meeting me as I advanced towards the birds. I emerged from the water almost exhausted with heat, my eyes aching from the perspiration ; but the refreshing sea-breeze now reached me, and cooled my feverish frame. Thankful, Reader, did I then feel, and thankful do I feel now, having survived so many encounters of this kind.

The nest of the Florida Cormorant is of rather a small size, being only eight or nine inches in diameter. It is formed of sticks crossing each other, and is flat, without any appearance of finishing. All the nests are placed on a western exposure, and are usually completely covered with excrement, as are also frequently the eggs, which are three or four, and differ in size, their average length, however, being two inches and a quarter, their greatest breadth one inch and three and a half eighths. They are rendered rather rough by the coating of calcareous matter which surrounds them ; but when this is removed, the real shell is found to be of a uniform fine light bluish-green tint. I was unable to ascertain the period of incubation. The young are at first blind, naked, black, and extremely uncouth. On placing some which were quite small on the water, they instantly dived, rose again, and swam about at random, diving on the least noise. If you approach them when about a month old, they throw themselves from the nest and plunge into the water. When undisturbed, they remain in the nest until they are fully fledged and able to fly, after which they undergo various changes, and are not perfect until nearly two years old.

Soon after they are left to shift for themselves, great numbers go to search for food in the quiet waters of inland streams. Thousands may now be seen on the lakes of the interior of the Floridas, and on the large rivers there. At this season many proceed as far as the Capes of North Carolina, the Mississippi, the Arkansas, the Yazoo, and other streams, including the fair Ohio, on which they are at times seen early in October, when they begin to return to the places of their nativity. During several weeks which I spent on the St John's River, while on board the United States' schooner-of-war the Spark, I was surprised to see the number of these Cormorants already returning towards the keys, so much so that had I been the discoverer of that stream under similar circumstances, I

should in all probability have named it Cormorant River. While we were at anchor near its mouth, they passed close to us in long single files almost continually, and, on reaching the sea, bore away towards the south along the shores.

On the Mississippi, in the month of October, when the temperature is considerably lower than in the Floridas, you see these birds during the day standing in their usual inclined position, on the sawyers and planters, as if resting there—so at least was the case in the autumn of 1820,—or on the dead branches of trees along the shores. In cloudy days they sailed high in the air, and in wide circles, after which, as if aware of cold weather being at hand, they swiftly followed in long lines the meandering course of the stream, at a considerable elevation. While sailing aloft, they frequently uttered a note not unlike that of the raven in similar circumstances. When approached while standing on a planter, instead of taking to wing at once, although elevated several feet above the water, they prefer plunging first into the stream, when they almost instantly rise to the surface, paddle with their feet, and beat with their wings for twenty or thirty yards, and then rise into the air. Now and then, when of a sudden the weather becomes cold at night, you see them at early dawn join in numbers of fifty or perhaps a hundred, rise high in the air, arrange themselves in angular double files, and fly swiftly southward.

When in fresh water streams they fish principally in the eddies, and as soon as one of them is depopulated, or proves unworthy of their farther search, they rise and fly about a foot above the surface to another place, where they continue to fish. In the inner lakes of the Floridas they fish at random any where, and this is equally the case around the Keys, and on the bays and inlets along the coast. In fine calm weather, when the sun is pouring down a flood of light and heat, the Cormorants in flocks betake themselves to some clean sand-bar or rocky isle, or alight on trees, where they spread out their wings, and bask at times for hours, in the manner of Vultures and Pelicans.

The Florida Cormorant, like all the other species with which I am acquainted, swims deep, and dives with great expertness, so that it is almost useless to follow one when wounded, unless it has been greatly injured. On seeing an enemy approach, it first beats the water with its wings, as if in play, or as it would do if washing itself, raises both wings for a minute or more, then paddles off, and takes to wing. When on a

lake, they prefer diving to flying, swim with all but the neck and head under water, in the manner of the Anhinga or Snake-bird, and easily dive without shewing their backs.

They procure their food entirely by diving from the surface of the water, never from on wing, as some compilers assert; nay, the very form of their bill, and the want of air-cells, such as plunging birds are usually provided with, prevent them from darting from above into the water, as is the habit of Gannets and other birds, which seek for food on wing, go far out to sea, and stand gales such as the Cormorant, which rarely venture out of sight of the shores, does not dare to encounter, or of those which, like Gulls, pass swiftly in curved lines over the surface, picking up their prey. On emerging, these Cormorants usually swallow their prey if it has been so seized as to enable them to do so with ease; if not, they throw it up to a short distance in the air, receive it with open bill, and gulp it head foremost. If the fish is large, they swim or fly to the shore, or alight on a tree with it, and there beat and tear it to pieces, after which they swallow it. Their appetite is scarcely satiable, and they gorge themselves to the utmost at every convenient opportunity.

The flight of this species is perhaps more rapid than that of the others mentioned above, and is performed by continued flappings when the bird is travelling, but by alternate flappings and sailings of great elegance during the beginning of the breeding season, or when they collect in large flocks in lowering weather, sometimes also when about to alight. Their food consists chiefly of fish, and they generally prefer those of small size. While on the Florida Keys, I procured five specimens of the Hippocampus, fresh and uninjured, from the gullets of some of these Cormorants. They are hard to kill, and live to a great age.

They are easily treated in captivity; but their awkward movements on the ground, where they often use the tail as a support, render them less pleasing objects than other feathered pets. Besides, they eat and mute inordinately, and instead of charming you with songs, utter no sound excepting a grunt. Their flesh is dark, generally tough, and has a rank fishy taste, which can suit the palate only of refined epicures, some of whom I have heard pronounce it excellent. The Indians and Negroes of the Floridas kill the young when nearly able to fly, and after skinning them, salt them for food. I have seen them offered for sale in the New Orleans market, the poorer people there making gombo soup of them.

A bird of this species, which I shot near its breeding place, and which, on being examined, proved to be a female, had the feathers of the tail covered with delicate slender sea-weeds of a bright green colour, such as I have often observed on marine turtles, and which appeared to have actually grown there.

The slender feathers on the sides of the head fall off by the time incubation has commenced, and do not appear during winter, as is alleged by authors when speaking of the crests or appendages of Cormorants, nor do they last more than a few weeks, as is also the case in the Egrets and Herons.

PHALACROCORAX FLORIDANUS.

Plate CCLII. Adult Male in spring.

Bill about the length of the head, rather slender, somewhat compressed, straight, with the tip curved. Upper mandible with the dorsal line slightly concave, until near the tip, when it is decurved, the ridge convex, and separated from the sides by a narrow groove, the sides erect, convex, the edges sharp and straight as far as the unguis, which is strong, convex above, incurved, acute. No external nostrils when full-grown. Lower mandible with the angle long and very narrow towards the end, filled by an extensible membrane, which extends a short way down the throat, its dorsal line a little convex, the sides erect and convex, the edges sharp and inflected, the tip compressed and obliquely truncate.

Head rather small, oblong, narrowed before. Neck long and slender. Body rather full, depressed. Feet short, stout, placed far behind; tibia feathered in its whole length; tarsus very short, strong, much compressed, covered all round with scales, of which the anterior and lateral are large and subhexagonal, the posterior very small and roundish. Toes all placed in the same plane, and connected by reticulated webs, covered above with very numerous oblique scutella; first toe smallest, fourth longest. Claws rather small, strong, compressed, acute, rounded above, arched, that of the third toe pectinated on its inner edge.

Plumage of the head, neck, lower parts, and posterior portion of the back glossy, blended, and silky, of the fore part of the back and wings compact, the feathers with narrow loose glossy margins. From behind the eye to the length of an inch and a half on each side, a line of extremely

slender loose elongated feathers. Space around the eye, and to a large extent along the base of the bill, together with the small gular sac, bare. Wings rather small; primaries very strong, curved, rather narrow, tapering and obtuse, second longest, third almost equal, first longer than fourth; secondaries decurved, broad, broadly rounded, the inner narrower. Tail of moderate length, very narrow, much rounded, or cuneate, of twelve narrow rounded feathers, having extremely strong shafts.

Upper mandible black, along the basal margins bright blue; lower bright blue, curiously spotted with white. Iris light green, margins of eyelids light blue, spotted with white. Bare space on the head and gular sac rich orange. Feet and claws greyish-black. All the silky part of the plumage is greenish-black, at a distance appearing black, but at hand in a strong light green. The imbricated feathers of the back and wings greyish-brown, tinged with purple, their fringe-like margins greenish-black. Primary quills brownish-black, secondary like the other feathers of the wing. Tail brownish-black. The shafts of all the feathers brownish-black.

Length to end of tail $29\frac{1}{2}$ inches, to end of wings $25\frac{1}{2}$, to end of claws $28\frac{1}{2}$; extent of wings $46\frac{1}{2}$; wing from flexure $11\frac{1}{4}$; tail 6; bill along the back $2\frac{5}{8}$, along the edge of lower mandible $3\frac{7}{8}$; tarsus 2; outer toe $3\frac{5}{8}$, its claw $\frac{1}{4}$. Weight $3\frac{1}{2}$ lb.

The Female is precisely similar to the male.

The young, after their first moult, have the bill dull yellow, the ridge of the upper mandible dusky, the unguis or hook horn-colour; the naked parts about the base of the bill rich yellow, the iris light green, the feet as in the adult. The feathers of the head and neck are blended, but not silky; the upper part of the head and the hind neck are brownish-black, tinged with green, the throat greyish-white, the fore neck and anterior part of the breast variegated with pale brownish-grey and black. The rest of the plumage is as in the adult, but the imbricated feathers of the upper parts are of a lighter colour, but not bronzed.

This species differs from the Double-crested Cormorant principally in being smaller, and in having the elongated feathers behind the eye much fewer. The two species will be more particularly compared when the latter is described.

THE POMARINE JAGER.

LESTRIS POMARINUS, TEMM.

PLATE CCLIII. FEMALE.

THIS bird I never had an opportunity of examining until I visited Labrador; nor am I able to give you much information respecting its habits as obtained by my own observation, and therefore I shall take the liberty of adding to my description such notices as I may judge interesting, taken from the works of authors who, having seen for themselves, are entitled to credit.

While sailing towards the harbour of Little Macatina, and yet about forty miles distant from it, although not far from the shore, we observed a bird of this species approaching the vessel. It flew in the manner of the Pigeon Hawk, to my account of which I may refer you, alighted on the water like a Gull, and fed on some cod-fish's liver that had been thrown overboard for the purpose of attracting it. Several small Petrels joined it, but it did not come within shot, and the sea was too rough for even our whale-boat. On the 30th of July the young men of my party brought me a fine adult female, in excellent order, from which I drew the figure in the plate. A few days after we experienced a very heavy gale while in the harbour of Bras d'Or, during the continuance of which twenty or thirty of these birds came about us, although none of them approached within shot, and no boat could have ridden the furious waves without imminent danger. On that occasion, however, I was enabled to observe some of their habits. They flew wildly about, yet with much grace, moving rapidly to and fro, now struggling against the blast, now bearing off and drifting to a considerable distance. Many Gulls were flying about, having also made for the harbour to obtain some shelter from the storm. The Lestris chased the smaller species with effect, but never approached the Great Black-backed Gulls, nor even their young, which were also flying with the rest. The Kittiwakes and the Ring-billed Gulls were the species which we saw them attack, although they did not procure much food from them, the weather being such that they could not fish. They were therefore contented, as was the Lestris, with the fishes that had been thrown on shore. At times the Jagers would ramble over the land,

flying close upon the rocks, and proceeding at a rapid rate even against the wind. They remained in our neighbourhood until the tempest abated, when they went off to sea, and I saw no more of them until we reached St George's Bay in Newfoundland.

There, on a squally afternoon, two or three of them were observed flying around, but keeping at such a distance that we could not shoot any of them. The following day, after setting sail, we encountered a heavy gale, which, although foretold by me from the appearance of the birds in the harbour, our good captain would not believe as likely to happen. We were obliged to lie-to, and were tossed about for three nights and days, but escaped with little other damage than the loss of a pet Gull, which was washed overboard.

On our return to Eastport, Captain EMERY told me that he had seen a great number of these Jagers near Cape Sable; and at Halifax, in Nova Scotia, I was assured that they breed on Sable Island, which is sixty or seventy miles distant from the coast. I never observed one of these birds along the shores of the United States, although some of the genus go as far south in winter as the Gulf of Mexico.

Nothing is known with certainty respecting the changes which this species undergoes as it advances toward maturity. Captain JAMES CLARK Ross, R. N. has informed me that a nest containing two eggs was found by him near Fury Point, close by the edge of a small lake. I have no doubt that this bird breeds in Labrador, as the female which I obtained in July appeared as if it had young at the time.

My friend Mr SELBY states that he is not aware that an adult bird has yet been killed in Britain. M. TEMMINCK says it forms a rude nest of grass and moss, which is placed on a tuft in the marshes, or on a rock, and lays two or three very pointed eggs, of a greyish-olive colour, marked with a few blackish spots. Dr RICHARDSON has the following notice respecting it in the *Fauna Boreali-Americana*:—"The Pomarine Jager or Gull-hunter is not uncommon in the Arctic seas and northern outlets of Hudson's Bay, where it subsists on putrid fish and other animal substances thrown up by the sea, and also on the matters which the Gulls disgorge when pursued by it. It retires from the north in the winter, and makes its first appearance at Hudson's Bay in May, coming in from seaward."

LESTRIS POMARINUS, *Temm. Man. d'Ornith.* part ii. p. 793.

LESTRIS POMARINA, POMARINE JAGER, *Ch. Bonaparte*, Synopsis of Birds of the United States, p. 364.—*Swains.* and *Richards*, Fauna Bor. Amer. part ii. p. 429.

POMARINE JAGER, *Nuttall*, Manual, vol. ii. p. 315.

Adult Female. Plate CCLIII.

Bill shorter than the head, strong, slightly compressed, straight, the tip curved. Upper mandible with the dorsal line nearly straight, toward the tip curved, the ridge broad and convex with a slight central depression, the sides convex, the edges sharp and inflected, the tip compressed, rather rounded but sharp. Nasal groove long, narrow, curved; nostrils in its fore part, medial, lateral, longitudinal, broad before, extremely narrow behind, open and pervious. Lower mandible with the angle long and narrow, a slight prominence at its extremity, beyond which the dorsal line is slightly concave, the sides erect, and slightly convex, the edges sharp and inflected, the tip obliquely truncate.

Head rather large. Neck of moderate length. Body rather full. Feet of moderate length, rather slender; tibia bare at its lower part, and rough all round with small convex scales; tarsus compressed behind, anteriorly covered with decurved scutella, the sides reticulated, the hind part rough with small pointed scales; hind toe extremely small and elevated, the fore toes of moderate size, connected by reticulated webs, which have their margins convex; the third toe longest, the fourth nearly as long, all scutellate above. Claws strong, curved, very acute, compressed, that of third toe with a sharp inner edge.

The plumage in general is close, elastic, soft and blended; the feathers on the back and wings rather compact and distinct. Wings very long, rather broad, pointed; primary quills tapering and rounded, the first longest, the rest rapidly graduated; secondary rather short, rounded. Tail of moderate length, the feathers, which are twelve, are broad and rounded, the two middle an inch longer than the next.

Bill blackish-brown at the end, dingy yellow towards the base. Iris brown. Tibia, toes, webs, and lower half of tarsus black, the upper half light blue; claws black. Upper part and sides of the head anteriorly brownish-black; upper part of neck all round yellowish-white; the rest of the neck white, barred with brownish-black, each feather having two transverse bands of that colour; breast white; sides, abdomen and lower tail-coverts white, barred with brownish-black, as are the upper tail-

coverts. Back and wings brownish-black; primary quills of the same colour, white on the inner webs towards the base, as are the secondaries and tail-feathers, lower surface of wings mottled and barred with white and dusky.

Length to end of tail $20\frac{1}{4}$ inches, to end of wings $20\frac{1}{4}$, to end of claws $19\frac{1}{4}$; extent of wings 48; wing from flexure $14\frac{1}{2}$; tail $6\frac{2}{3}$; bill along the back $1\frac{9}{16}$, along the edge of lower mandible $2\frac{1}{8}$; tarsus $2\frac{1}{16}$; middle toe $1\frac{9}{16}$, its claw $\frac{8}{16}$. Weight $1\frac{1}{8}$ lb.

WILSON'S PHALAROPE.*PHALAROPUS WILSONII*, SABINE.

PLATE CCLIV. MALE AND YOUNG.

THE habits of this beautiful species are little known, for so irregularly does it perform its migrations, and so rarely does it settle for any length of time in any part of the United States, that at present few opportunities of studying them occur. Although I have found individuals in various places along our eastern coast, from Boston to New Jersey, as well as in Kentucky and other portions of the Union, I have not seen its nest, nor even its eggs. Mr DRUMMOND, whose zeal as a student of nature must be known to every one devoted to natural history, had the good fortune to find its nest in the course of his rambles among the Rocky Mountains, but he has given no information respecting its habits. A person who shewed me the skins of two specimens procured in July near Cape May in New Jersey, assured me that he shot them near their nests, and that they had four eggs. While I was in the same neighbourhood, in the month of June 1829, a fisherman gunner, with whom I was at the time residing at Great Egg Harbour, brought me a pair which he had just killed. He represented them as very gentle and easily approached, and said that on going towards them they affected to be lame, and opened their wings as if to induce him to run after them ; instead of doing which, however, he immediately fired and killed them both. Having put away the birds in a safe place, he and I took to his boat and went to the island where he had found them. He shewed me the spot on which they had been shot ; but although we searched most diligently for the nest, we could not find it. On examining the birds when we returned, I saw that the female must have been sitting. About the same period my son procured two specimens of this Phalarope out of a flock of five, on the rocks at the rapids of the Ohio below Louisville. Late in the summer of 1824 I shot three of them near Buffalo Creek on Lake Erie. My generous friend EDWARD HARRIS, Esq. presented me, at New York, with a young bird in autumnal plumage, from which I made the figure in the plate ; and another, in a most emaciated state, was given me at Boston in the winter by my young friend JOHN BETHUNE, Esq.

Those which I procured near Lake Erie were engaged in feeding around the borders and in the shallows of a pond of small extent. When I first observed them at some distance, I thought they were Yellow-shanks (*Totanus flavipes*), so much did their motions resemble those of that species. Like it, this Phalarope wades in the water up to its body, picks for food right and left, turns about, and performs all its motions with vivacity and elegance. They kept closer together than the Yellow-shanks usually do, but, like them, they would for a few moments raise their wings as if apprehensive of getting into too deep water and being obliged to fly. They preferred flying to swimming on such occasions, although from the general character of the tribe one might expect otherwise. After watching them about a quarter of an hour, during which time they did not utter a single note, I fired at them when they were all close together, and killed the whole. On opening them I found their stomachs to contain small worms and fragments of very delicate shells. The birds seen at the Falls of the Ohio flew in the manner of the Common Snipe, proceeding at first in an undulating or zigzag line, but more steadily after reaching a certain elevation, when they came pretty close together, wheeled a few times, and alighted again near the same shallow pools.

Dr RICHARDSON, who found this species breeding on the Saskatchewan, says "it lays two or three eggs among the grass on the margins of small lakes: they are very obtuse at one end, taper much at the other, and have a colour intermediate between yellowish-grey and cream-yellow, interspersed with small roundish spots and a few larger blotches of umber-brown, more crowded at the obtuse end. The eggs measure sixteen lines and a half in length and eleven across."

I observed scarcely any difference in the colouring of the sexes, the female being merely larger than the male.

PHALAROPUS WILSONII, *Ch. Bonaparte*, Synopsis of Birds of the United States, p. 342.

GRAY PHALAROPE, PHALAROPUS LOBATUS, *Wils. Amer. Ornith.* vol. ix. p. 72. pl. 73. fig. 2.

WILSON'S PHALAROPE, PHALAROPUS WILSONII, *Ch. Bonaparte*, *Amer. Ornith.* vol. iv. p. 59. pl. 24. fig. 1. Adult; and pl. 25. fig. 1. Young.

PHALAROPUS WILSONII, WILSON'S PHALAROPE, *Swains. and Richards*, Fauna Bor. Amer. part ii. p. 405, pl. 69.

AMERICAN PHALAROPE, *Nuttall*, Manual, vol. ii. p. 245.

Adult Male. Plate CCLIV. Fig. 1.

Bill long, very slender, flexible, flattened towards the end. Upper

mandible with the dorsal line straight, the ridge flattened, the sides at the base sloping, but towards the end nearly horizontal, the edges obtuse, the tip narrow. Nasal groove linear, long; nostrils basal, linear, pervious. Lower mandible with the angle very long and extremely narrow, the sides slightly convex, the tip narrowed.

Head small, with the fore part high and rounded; eyes of moderate size. Neck rather long and slender. Body slender. Feet rather long, slender; tibia bare a considerable way above the joint; tarsus extremely compressed, narrowed before, very thin behind, covered anteriorly with numerous scutella, posteriorly with two series of scutella meeting with a sharp edge; toes slender, first very small, free, with a slight membrane beneath, second slightly shorter than fourth, third considerably longer; all scutellate above, margined on both sides with narrow, slightly lobed, crenate membranes, which are united at the base so as to form short webs, of which the outer is longer. Claws very small, compressed, arched, that of the middle toe with the inner edge sharp.

Plumage soft and blended. Feathers of the back and wings distinct. Wings long and pointed, primary quills tapering but rounded, the first longest, the second scarcely shorter, the rest rapidly graduated; secondary quills rather short, broad, obliquely rounded, with a small tip, the inner tapering and elongated, so as nearly to equal the longest primaries when the wing is closed. Tail rather short, nearly even but with the two middle feathers longer, of twelve rounded feathers, of which the outer are incurved.

Bill black. Iris brown. Feet bluish-grey, claws black. The general colour of the upper parts is brownish-grey, the hind neck and upper tail-coverts greyish-white, the top of the head ash-grey. A white line over the eye; a band of black along the lore, under the eye, and down the side of the neck, on which it becomes broader and changes into chestnut-brown, when it proceeds along the scapulars of a brownish-red colour; another brownish-red band across the wing and including part of the inner secondaries. Quills greyish-brown, the outer primaries and their coverts darker. Tail-feathers pale brownish-grey on the outer, white more or less mottled on the inner webs. Throat and cheeks white; fore neck orange-brown, fading below, and extending paler along the sides of the body; breast, abdomen and lower wing-coverts white; lower surface of wings pale grey, of tail white.

Length to end of tail 10 inches, to end of claws 11; extent of wings

$17\frac{1}{2}$; wing from flexure $7\frac{4}{8}$; tail $2\frac{2}{8}$; bill along the back $1\frac{7}{8}$, along the edge of lower mandible $1\frac{8}{8}$; bare part of tibia $\frac{3}{4}$; tarsus $1\frac{1}{4}$; middle toe $1\frac{2}{8}$, its claw $\frac{2}{8}$. Weight $2\frac{1}{2}$ oz.

The Female, which is somewhat larger, is in colour precisely similar to the Male. Weight 3 oz.

Young in autumn. Plate CCLIV. Fig. 2.

The young bird after the first moult has the bill brownish-black, the iris brown, the feet greenish-yellow, the claws black. The upper parts are variegated with brownish-black and light greenish-yellow, the central part of each feather being of the former colour ; primary quills brownish-black ; tail-feathers as in the adult. The lower parts are white.

THE RED PHALAROPE.

PHALAROPUS FULICARIUS, BONAP.

PLATE CCLV. ADULT MALE AND FEMALE IN SUMMER, AND ADULT IN WINTER.

My first drawing of the Red Phalarope was made at Louisville in Kentucky, a few weeks after my removal to that place, in 1808. One afternoon, while returning from the house of my hospitable friend General CROGHAN, I observed a large flock of birds proceeding along the shores of the Ohio. They were quite unknown to me, and therefore extremely anxious I was to procure some of them. I therefore ran through the woods until I got ahead of them, went to the margin of the river, and concealed myself at some distance from them. They swam beautifully, played about, picked up substances floating on the water, now dispersed, and again came close together, until at length coming opposite to a small sand-bar stretching out from the shore to the distance of a few yards, they directed their course towards it, and waded out. When just landing, they were so close to each other that I could not withstand the temptation, and so levelled my gun, pulled both triggers, and saw that I had made considerable havock among them. Those which had not been hitten, flew off in a compact body, while the birds that had been but slightly wounded made for the water, and swam away so fast that they seemed to be running on the surface. I picked up seventeen, which I found so beautiful and withal so plump, that I felt quite delighted, and resolved to shoot as many more as I could. But I did not succeed in killing more than other five that day.

I had never until then seen a Phalarope of any kind, although I had inspected some shocking figures of these elegant birds, figures so unlike the originals that even with the aid of a name printed beneath, you could not recognise them. Such of my acquaintances at Louisville as had been accustomed to shoot birds, had never seen one of this species on the Ohio, or in any part of the country. It was then and there that I made my first drawing of the Red Phalarope, which I shewed to ALEXANDER WILSON during his visit to Louisville. It being late in October, the specimens which I had procured were all in their grey livery, and proved capital eating. As I was anxious to watch the rest of the flock, which I

think must have been composed of at least a hundred individuals, I went to the same place on the following afternoon. As I crossed Bear Grass Creek, near its junction with the Ohio, I observed eight or ten of them walking over the green moss on the surface of the water near the shore. Of these I succeeded in killing three. In the course of a walk of two miles along the banks of the river, I could see none; and some Blue-winged Teals happening to pass over from the stream in the direction of a pond between it and Kieger's Ferry-house, I went in pursuit of them. Before I got up they had flown away, or had passed over without alighting. There, however, to my great joy, I found all the Phalaropes swimming along the margins and picking up the seeds of grasses. They were much less shy than when I met with them on the river, so that I soon procured eight more at a single shot. The rest rose, emitting quick sharp cries, performed a few evolutions at a considerable height, and went off to the westward.

On the 1st of September 1831, while on board the packet ship *Columbia*, commanded by my good friend JOSEPH DELANO, Esq. Nantucket being distant about sixty miles, we came upon an extensive bank of seaweeds and froth, about a mile in length, which I was told was produced by the action of the tides. On this bed were hundreds of Phalaropes of this species, walking as unconcernedly as if on land. As we approached it, they rose and flew around the vessel for a few minutes, and when we had passed through we saw them re-alight.

I have not seen the Red Phalarope alive on any other occasion than those mentioned above; and I am indebted to my generous friend Captain JAMES CLARK ROSS for the beautiful specimens in summer plumage, from which the figures in the plate were taken.

None of those which I had wounded attempted to dive. When caught and held in the hand, they merely fluttered and tried to escape, like other small birds. Their flight was rapid, resembling that of the Red-backed Sandpiper, *Tringa alpina*, and they performed various evolutions, sometimes skimming over the water, when they kept more apart than either when rising at first, or when they reached a certain height, on attaining which they pursued their course, with alternate inclinations to either side.

According to Captain J. C. Ross, these birds breed in great numbers far north. The eggs, of which he has favoured me with some, measure an inch and a quarter by seven-eighths; their ground colour is dull greenish-yellow, irregularly blotched and dotted with reddish-brown.

PHALAROPUS FULICARIUS, *Ch. Bonaparte*, Synopsis of Birds of the United States, p. 341.

RED PHALAROPE, *PHALAROPUS HYPERBOREUS*, *Wils.* Amer. Ornith. vol. ix. p. 75. pl. 74, fig. 4.

PHALAROPUS FULICARIUS, FLAT-BILLED PHALAROPE, *Swains. and Richards*, Fauna-Bor. Amer. part ii. p. 407.

RED PHALAROPE, *Nuttall*, Manual, vol. ii. p. 236.

Adult Male in Summer. Plate CCLV. Fig. 1.

Bill scarcely longer than the head, straight, slender, nearly cylindrical, towards the end broader and flattened, the tip narrow. Upper mandible with the dorsal line straight, excepting at the end, where it is a little curved, the ridge convex, flattened at the broad part, the sides slightly sloping, the edges rounded, and near the slightly curved obtuse tip inflected. Nasal groove linear, extending to near the tip; nostrils basal, linear-elliptical. Lower mandible with the angle very long and narrow, the sides convex, the tip narrowed, obtuse.

Head small, with the fore part high and rounded; eyes small. Neck of moderate length. Body rather full. Feet rather short, slender; tibia bare a short way above the joint; tarsus much compressed, narrowed before and behind, covered anteriorly with numerous scutella; toes very slender, first extremely small, free, with a slight membrane beneath, second shorter than third, which is a little longer; all scutellate above, the anterior margined on both sides with lobed and pectinated membranes, which are united at the base, so as to render the foot nearly half-webbed, the outer web much longer than the inner. Claws very small, compressed, arched, obtuse, that of the middle toe with an inner sharp edge.

Plumage soft and slender, the feathers on the back and wings somewhat distinct. Wings long and pointed; primary quills tapering, but rounded, the first longest, the second a little shorter, the rest rapidly graduated; secondary quills rather short, obliquely truncate, the inner tapering and elongated, so as nearly to equal the longest primaries when the wing is closed. Tail of moderate length, much rounded, of twelve feathers.

Bill greenish-yellow, black at the point. Iris brown. Feet pale greyish-blue. Upper part of the head black; loreal space and chin blackish-grey; sides of the head, and a band round the occiput, white. Sides and fore part of the neck, breast, abdomen, and lower tail-coverts deep orange-red. Fore part of the back, scapulars, and inner secondaries, black,

the feathers edged with whitish ; wing-coverts deep ash-grey ; quills dark greyish-brown, their shafts and basal parts white ; the ends of the secondary and primary coverts, and the basal part of the outer webs of the primaries, being white, a band of that colour is seen on the wing when it is extended. Upper tail-coverts orange-red ; tail deep grey, darker towards the end, slightly tipped with reddish.

Length to end of tail $7\frac{1}{2}$ inches, to end of claws $6\frac{3}{4}$; extent of wings 13 ; wing from flexure 5 ; tail $2\frac{3}{4}$; bill along the back $\frac{1}{3}$, along the edge of lower mandible $1\frac{1}{8}$; tarsus $\frac{1}{2}$; middle toe $\frac{1}{2}$, its claw $\frac{1}{4}$.

Adult Female in summer. .Plate CCLV. Fig. 2.

The Female has the upper part variegated with light red and brownish-black, the central part of each feather being of the latter colour, the upper tail-coverts entirely of the former. Wings greyish-black, with a transverse white band ; tail deep grey as in the male. The lower parts are of a less pure red than those of the male, being paler and tinged with grey.

Adult in winter. Plate CCLV. Fig. 3.

The winter plumage of the adult is very different in colour. The bill is nearly black, the feet as in summer. The upper part of the head, checks, fore part and sides of the neck, breast, abdomen, lower and upper tail-coverts, and a band across the wing, are white ; a brownish-black line from the eye to the occiput, which is of the same colour, as well as the middle of the hind neck. The back, scapulars, and inner secondaries, are ash-grey, the wings as in summer.

Length to end of tail $7\frac{1}{2}$ inches.

BREAKING UP OF THE ICE.

WHILE proceeding up the Mississippi above its junction with the Ohio, I found, to my great mortification, that its navigation was obstructed by ice. The chief conductor of my bark, who was a Canadian Frenchman, was therefore desired to take us to a place suitable for winter-quarters, which he accordingly did, bringing us into a great bend of the river called Tawapatee Bottom. The waters were unusually low, the thermometer indicated excessive cold, the earth all around was covered with snow, dark clouds were spread over the heavens, and as all appearances were unfavourable to the hope of a speedy prosecution of our voyage, we quietly set to work. Our bark, which was a large keel-boat, was moored close to the shore, the cargo was conveyed to the woods, large trees were felled over the water, and were so disposed as to keep off the pressure of the floating masses of ice. In less than two days, our stores, baggage, and ammunition, were deposited in a great heap under one of the magnificent trees of which the forest was here composed, our sails were spread over all, and a complete camp was formed in the wilderness. Every thing around us seemed dreary and dismal, and had we not been endowed with the faculty of deriving pleasure from the examination of nature, we should have made up our minds to pass the time in a state similar to that of bears during their hybernation. We soon found employment, however, for the woods were full of game; and deer, turkeys, racoons, and opossums might be seen even around our camp; while on the ice that now covered the broad stream rested flocks of swans, to surprise which the hungry wolves were at times seen to make energetic but unsuccessful efforts. It was curious to see the snow-white birds all lying flat on the ice, but keenly intent on watching the motions of their insidious enemies, until the latter advanced within the distance of a few hundred yards, when the swans, sounding their trumpet-notes of alarm, would all rise, spread out their broad wings, and after running some yards and battering the ice until the noise was echoed like thunder through the woods, rose exultingly into the air, leaving their pursuers to devise other schemes for gratifying their craving appetites.

The nights being extremely cold, we constantly kept up a large fire, formed of the best wood. Fine trees of ash and hickory were felled, cut

up into logs of convenient size, and rolled into a pile, on the top of which, with the aid of twigs, a fire was kindled. There were about fifteen of us, some hunters, others trappers, and all more or less accustomed to live in the woods. At night, when all had returned from their hunting-grounds, some successful and others empty-handed, they presented a picture in the strong glare of the huge fire that illuminated the forest, which it might prove interesting to you to see, were it copied by a bold hand on canvass. Over a space of thirty yards or more, the snow was scraped away, and piled up into a circular wall, which protected us from the cold blast. Our cooking utensils formed no mean display, and before a week had elapsed, venison, turkeys, and racoons hung on the branches in profusion. Fish, too, and that of excellent quality, often graced our board, having been obtained by breaking holes in the ice of the lakes. It was observed that the opossums issued at night from holes in the banks of the river, to which they returned about day-break; and having thus discovered their retreat, we captured many of them by means of snares.

At the end of a fortnight our bread failed, and two of the party were directed to proceed across the bend, towards a village on the western bank of the Mississippi, in quest of that commodity; for although we had a kind of substitute for it in the dry white flesh of the breast of the wild turkey, bread is bread after all, and more indispensable to civilized man than any other article of food. The expedition left the camp early one morning; one of the party boasted much of his knowledge of woods, while the other said nothing, but followed. They walked on all day, and returned next morning to the camp with empty wallets. The next attempt, however, succeeded, and they brought on a sledge a barrel of flour and some potatoes. After a while, we were joined by many Indians, the observation of whose manners afforded us much amusement.

Six weeks were spent in Tawapatee Bottom. The waters had kept continually sinking, and our boat lay on her side high and dry. On both sides of the stream, the ice had broken into heaps, forming huge walls. Our pilot visited the river daily, to see what prospect there might be of a change. One night, while, excepting himself, all were sound asleep, he suddenly roused us with loud cries of "the ice is breaking! get up, get up, down to the boat lads, bring out your axes, hurry on, or we may lose her, here let us have a torch!" Starting up, as if we had been attacked by a band of savages, we ran pell-mell to the bank. The ice was indeed breaking up; it split with reports like those of heavy artillery, and as the

water had suddenly risen from an overflow of the Ohio, the two streams seemed to rush against each other with violence, in consequence of which the congealed mass was broken into large fragments, some of which rose nearly erect here and there, and again fell with thundering crash, as the wounded whale, when in the agonies of death, springs up with furious force, and again plunges into the foaming waters. To our surprise, the weather, which in the evening had been calm and frosty, had become wet and blowy. The water gushed from the fissures formed in the ice, and the prospect was extremely dismal. When day dawned, a spectacle strange and fearful presented itself: the whole mass of water was violently agitated, its covering was broken into small fragments, and although not a foot of space was without ice, not a step could the most daring have ventured to make upon it. Our boat was in imminent danger, for the trees which had been placed to guard it from the ice were cut or broken into pieces, and were thrust against her. It was impossible to move her; but our pilot ordered every man to bring down great bunches of cane, which were lashed along her sides; and before these were destroyed by the ice, she was afloat and riding above it. While we were gazing on the scene, a tremendous crash was heard, which seemed to have taken place about a mile below, when suddenly the great dam of ice gave way. The current of the Mississippi had forced its way against that of the Ohio; and in less than four hours, we witnessed the complete breaking up of the ice.

During that winter, the ice was so thick on the Mississippi, that opposite St Louis, horses and heavy waggons crossed the river. Many boats had been detained in the same manner as our own, so that provisions and other necessary articles had become very scarce, and sold at a high price. This happened about twenty-eight years ago.

THE REDDISH EGRET.

ARDEA RUFESCENS, GMEL.

PLATE CCLVI. ADULT AND YOUNG.

WHILE sailing towards the Florida Keys, my mind was agitated with anticipations of the delight I should experience in exploring a region whose productions were very imperfectly known. Often did I think of the Heron named after TITIAN PEALE, by my learned friend the Prince of Musignano. Mr PEALE had procured only a single specimen, and in the winter season, but whether or not the species was abundant on the Keys of Florida remained to be discovered. No sooner had I been landed and formed an acquaintance with Mr EGAN, the pilot of whom I have often spoken, who was well acquainted with the haunts of many of the birds of those islands, than I asked him respecting the various Herons which might be found there or on the shores of the mainland. Before answering me, he counted his fingers slowly, and then said that he could recollect only "twelve sorts;" "but," added he, "these birds change their colours so curiously, that it is past wonder with me to believe that any one man could know them without watching them as I have done for many years." I then inquired if I was in good time to procure all the sorts which he knew. He answered in the affirmative; but felt some doubt as to my procuring the eggs of one kind at least, which breed earlier than the rest, and was pure white from the shell, and the largest of all. Thinking the species to which he alluded might be the *Ardea alba* of LINNÆUS, I asked if it had long thread-like feathers over the tail during the breeding season. "Oh no, Sir," said he, "it never has; it is as tall as yourself, and when you see some on the wing, you will be pleased, for their wings are as large as those of the Brown Pelican. The one I guess you mean, mostly goes farther to the eastward to breed, along with a very small one, also always white, with the feathers over the tail as you say, and curled upwards. These are the only three sorts that are white." I begged him to describe the colours of the others, which he did so well that I recognised ten species in all; but the large white one, and another of a grey and purple colour, were unknown to me, and I told him so, stating at the same time how anxious I was to procure them if possible.

“ If possible ! nothing in the world can be more easy, for if they have no eggs left, they have young ones enough to load your schooner. I can take you straight to their breeding place.”

You may suppose, Reader, how my spirits were raised by this intelligence, and how surprised I was that PEALE's Egret was not in the number of the Florida Herons. We speedily embarked in Mr THURSTON's boat, spread our sails to the breeze, and passed several keys, on which we procured two young birds of the large white species, which I saw at once was unknown to me, but of which you will find an account in this volume. As we approached the next island, I saw twenty or thirty pairs of Herons, some of which were pure white, others of a light blue colour, but so much larger than the Blue Heron, *Ardea cærulea*, that I asked the pilot what they were, when he answered, “ the very fellows I want to shew you, and you may soon see them close enough, as you and I will shoot a few by way of amusement.” Before half an hour had elapsed, more than a dozen were lying at my feet. Some of them were as white as driven snow, the rest of a delicate purplish tint, inclining to grey on the back and wings, with heads and necks of a curious reddish colour. Males and females there were, but they were all of one species, for my companion assured me that “ this sort bred before they turned to their natural colours,” by which he meant before attaining their full plumage at the age of three years. Well, the immature birds were the very same as the individual to which, as the representative of a new species, the name of Peale's Egret had been given. This I saw at once, for so good is the representation of it in the fourth volume of BONAPARTE's American Ornithology, that from the mere recollection of it I was enabled to recognise the bird at once. You may imagine the pleasure I felt, as well as that which I experienced on becoming better acquainted with this species, which I found in many places both with eggs and with young.

The Reddish Egret is a constant resident on the Florida Keys, to which it is so partial at all seasons that it never leaves them. Some individuals are seen as far east as Cape Florida, and westward along the Gulf of Mexico. Whether it may ever betake itself to fresh water I cannot say, but I never found one in such a situation. It is a more plump bird for its size than most other Herons, and in this respect resembles the Night Heron and the Yellow-crowned species, but possesses all the gracefulness of the tribe to which it belongs. In walking it lifts its feet high, and proceeds at a quiet pace, but sometimes briskly ; it alights with ease on trees, and walks

well on the larger branches. It rarely feeds from the edges of the water, but resorts to the shallows of the extensive mud or sand flats, so numerous about the keys. There, twenty or thirty, sometimes so many as a hundred, may be seen wading up to the heel (or knee-joint as it is usually called) in pursuit of prey, or standing in silence awaiting the approach of an animal on which it feeds, when it strikes it, and immediately swallows it, if not too large; but if so, it carries it to the shore, beats it, and tears it to pieces, rarely, however, using its feet for that purpose, and certainly never employing its pectinated claws, which no Heron that I know ever uses for any other object than that of scratching its head, or perhaps of securing its steps on rocky bottoms. These birds remain on the flats thus employed, until the advance of the tide forces them to the land.

The flight of this Heron is more elevated and regular than that of the smaller species. During the love season, it is peculiarly graceful and elegant, especially when one unmated male is pursuing another, a female being in sight. They pass through the air with celerity, turn and cut about in curious curves and zigzags, the stronger bird frequently erecting its beautiful crest, and uttering its note, at the moment when it expects to give its rival a thrust. When these aerial combats take place between old and immature birds, their different colours form a striking contrast, extremely pleasing to the beholder. While travelling to and from their feeding grounds, or from one key to another, they propel themselves by easy, well-sustained, and regular flappings of their extended wings, the neck reposing on the shoulders, the legs stretched out behind like a rudder, while their beautiful thready trains float in the breeze. On approaching a landing place, they seldom fail to perform a few circumvolutions, in order to see that all around is quiet, for they are more shy and wary than the smaller Herons, and almost as suspicious as the two larger species, *Ardea occidentalis*, and *A. Herodias*; and this becomes apparent as soon as they discontinue the feeding of their young, when you find it extremely difficult to approach them. After this period I rarely shot one, unless I happened to come upon it unawares, or while it was passing over me when among the mangroves.

About the beginning of April, these Herons begin to pair. The males chase each other on the ground, as well as in the air, and on returning to their chosen females erect their crest and plumes, swell out their necks, pass and repass before them, and emit hollow rough sounds,

which it is impossible for me to describe. It is curious to see a party of twenty or thirty on a sand-bar, presenting as they do a mixture of colours from pure white to the full hues of the old birds of either sex ; and still more curious perhaps it is to see a purple male paying his addresses to a white female, while at hand a white male is caressing a purple female, and not far off are a pair of white, and another of purple birds. Nay, reader, until I had witnessed these remarkable circumstances, I felt some distrust respecting the statement of the worthy pilot. I am even now doubtful if all the young breed the first spring after their birth, and am more inclined to think that they do not, on account of the large flocks of white birds of this species which during the breeding time kept apart from those that had nests, but which on examination were not found to be barren birds, although they had the crests and pendent feathers less elongated than those white individuals that were actually breeding.

By the middle of April, they construct their nests, which they place for the most part on the south-western sides of the mangroves immediately bordering the keys, never on the trees at a distance from the water, and rarely very close together. Some are placed on the top branches, others a foot or two above the highest tide-mark ; many of them are annually repaired, perhaps all that stand the winter gales. The nest, which is quite flat, is large for the size of the bird, and is formed of dry sticks, interspersed with grass and leaves. The eggs are three, average an inch and three quarters in length, one and three-eighths in breadth, have an elliptical form, and a smooth shell, of a uniform rather pale sea-green colour. They afford excellent eating. Both sexes incubate, but I did not ascertain the time required for hatching.

The young while yet naked are of a dark colour, there being only a few scanty tufts of long soft down on the head and other parts ; but when the feathers begin to sprout they become white. Being abundantly and carefully fed, at first by regurgitation, they grow fast, and soon become noisy. When about a month old, they are fed less frequently, and the fish is merely dropt before them, or into their open throats ; soon after they sit upright on the nest, with their legs extended forward, or crawl about on the branches, as all other Herons are wont to do. They are now sensible of danger, and when a boat is heard coming towards them they hide among the branches, making towards the interior of the keys, where it is extremely difficult to follow them. On one occasion, when I was desirous of procuring some of them alive, to take to Charleston, it

took more than an hour to catch eight or nine of them, for they moved so fast and stealthily through the mangroves, always making for the closest and most tangled parts, that a man was obliged to keep his eyes constantly on a single individual, which it was very difficult to do, on account of the number of birds crossing each other in every direction. They do not fly until they are six or seven weeks old, and even then do not venture beyond the island on which they have been reared. In captivity, those which we had procured feed freely, and soon became tolerably docile. They were supplied with pieces of green turtle and other species of the tribe, and some of them reached Charleston in good health. One continued alive for nearly two years with my friend the Rev. JOHN BACHMAN. It was allowed to walk in the garden and poultry-yard, and ate an enormous quantity of small fish and all sorts of garbage, contenting itself, when better food was scarce, with the entrails of fowls, and even fed freely on moistened corn-meal or mush. It caught insects with great dexterity, and was very gentle and familiar, frequently going into the kitchen, where it was a great favourite. It had acquired a crest and a few of the pendent feathers of the back by the month of January, when about twenty-two months old. One cold night, it was accidentally neglected, and in the morning was found dead, having shared the fate of so many thousands of pet birds in all parts of the world. On being opened, it was found to be a male. Although I have not been able to trace the gradual changes of colour which this species undergoes, I have little doubt that it will be found to attain maturity the third spring after birth.

The Reddish Egret rarely associates with others; nor does it suffer them to nestle on the same island with itself. In this respect, it differs from all other Herons with which I am acquainted; for although the Great White Heron, *A. occidentalis*, has a decided antipathy to the Great Blue Heron, still it now and then allows a few to breed on the north side of its island. The present species is as strictly marine as the Great White Heron; and these are the only two that are so, for all the others feed on fresh-water fishes, not less than on those obtained in salt-water, as well as on other food of various kinds. Like all others, the Reddish Egret loses its ornaments soon after incubation, when old and young mix, and follow their occupations together. When wounded, it strikes with its bill, scratches with its claws, and, throwing itself on its back, emits its rough and harsh notes, keeping all the while its crest erected and expanded, and its feathers swelled out. Its principal food consists of fishes of vari-

ous sizes, of which it consumes a great number, and of which it finds no difficulty in procuring a sufficiency, as all the waters of those portions of the Floridas that are inhabited by it are very profusely stocked. I was told that, although still plentiful in the Floridas, this species was much more so when the keys were first settled. I was present when a person killed twenty-eight in succession in about an hour, the poor birds hovering above their island in dismay, and unaware of the destructive power of their enemy.

The remarkable circumstance of this bird's changing from white to purple will no doubt have some tendency to disconcert the systematists, who, it seems, pronounce all the birds which they name Egrets to be always white; but how much more disconcerted must they be when they see that among the Herons peculiarly so named, which they say are always coloured, the largest known to exist in the United States is pure white. It is not at present my intention to say what an Egret is, or what a Heron is; but it can no longer be denied that the presence or absence of a loose crest, floating plume, and a white colour, are insufficient for establishing essential characters separating Egrets from Herons, which in fact display the most intimate connection, the one group running into the other in an almost imperceptible gradation. Hoping that an account of the extent of the migrations of the twelve species of Heron that occur in the United States, and whose habits I have studied for many years under the most favourable circumstances, may prove acceptable, I now lay one before you, arranging the species according to size, without regard to the rank they hold in systematic works.

1. The Great White Heron. *Ardea occidentalis*. A constant resident on the southern keys of Florida; entirely maritime; never goes farther eastward than Cape Florida, though in winter the younger birds migrate southward, and perhaps pass beyond the extremities of the Gulf of Mexico.

2. The Great Blue Heron. *Ardea Herodias*. A constant resident in the Floridas; migrates throughout the Union, and as far along the Atlantic coast as the southernmost islands of the Gulf of St Lawrence in summer; breeds in all the districts, and at the approach of winter returns to the Southern States.

3. The White Heron. *Ardea alba*. Resident in the Floridas; migrates to the eastward sometimes as far as Massachusetts, and up the Mississippi as far as the city of Natchez; never seen far inland.

4. The Purple Heron. *Ardea rufescens*. Resident on the Florida Keys; entirely maritime; never seen farther eastward than Cape Florida; the young sometimes remove southward in winter.

5. The American Bittern. *Ardea minor*. A winter resident in the Floridas; many migrate over the greater part of the Union and beyond its northern limits; never seen in Kentucky; return before winter to the Southern States.

6. The Night Heron. *Ardea Nycticorax*. Resident in the Floridas; migrates eastward as far as Maine, up the Mississippi as high as Memphis; none seen in Kentucky; returns to the Southern States at the approach of winter, and occurs at the distance of a hundred miles inland.

7. The Yellow-crowned Heron. *Ardea violacea*. A few spend the winter in the Floridas; it rarely migrates farther eastward than New Jersey; proceeds up the Mississippi to Natchez; never goes far inland; the greatest number winter beyond the southern limits of the United States.

8. The Blue Heron. *Ardea cærulea*. Resident in the Floridas; migrates eastward as far as Long Island; proceeds up the Mississippi about a hundred miles above Natchez; never goes far inland.

9. The Louisiana Heron. *Ardea Ludoviciana*. Resident in the Floridas; rarely seen as far east as New Jersey; seldom passes Natchez on the Mississippi; never goes far inland.

10. The White Egret. *Ardea candidissima*. Resident in the Floridas; migrates eastward as far as New York, up the Mississippi as far as Memphis; never goes far inland; returns to the Southern States as soon as the young are able to travel.

11. The Green Heron. *Ardea virescens*. Resident in the Floridas; disperses over the Union; goes far inland; the greater number return at the approach of winter to the Southern States.

12. The Least Bittern. *Ardea exilis*. Resident in the Floridas; migrates as far as Maine, and throughout the Western Country, far up the Missouri; returns early in autumn to the Southern States.

You will see from the above statement, that the Herons are almost similar to our Pigeons in respect to the extent of their migrations, which must appear the more remarkable on account of their comparative size, *Ardea Herodias* and *A. virescens* corresponding in a great degree to the *Columba migratoria* and *C. carolinensis*.

L'AIRETTE ROUSSE, *Buffon*, Ois. vol. vii. p. 378. Pl. Enl. 902.

ARDEA RUFESCENS, *Gmel. Syst. Nat.* vol. i. p. 628.—*Lath. Ind. Ornith.* vol. ii. p. 694.

REDDISH EGRET, *Arct. Zool.* vol. ii. N. 348.—*Lath. Gen. Synops.* vol. iii. p. 88.

PEALE'S EGRET HERON, ARDEA PEALII, *Ch. Bonaparte*, *Amer. Ornith.* vol. iv. p. 96, pl. xxvi. fig. 1, the Young Bird.

Adult Male. Plate CCLVI. Fig. 1.

Bill much longer than the head, straight, compressed, tapering, the mandibles nearly equal in size. Upper mandible with the dorsal line nearly straight, the ridge broad and convex at the base, afterwards very narrow, a groove from the base to near the end, beneath which the sides are convex, the edges thin and sharp, with a notch on each side close to the narrow but obtuse tip. Nostrils basal, linear, longitudinal. Lower mandible with the angle long and extremely narrow, the dorsal line beyond it ascending and very slightly convex, the edges sharp and slightly inflected, the tip very narrow but obtuse.

Head rather small, oblong, compressed. Neck very long and slender. Body slender and compressed. Feet very long; tibia elongated and slender, its lower half bare, covered all round with angular scales; tarsus elongated, slender, compressed, covered anteriorly with numerous large scutella, laterally and behind with angular scales. Toes of moderate length, rather slender, scutellate above, reticularly granulate beneath; third toe considerably longer than the fourth, which is in nearly the same proportion longer than the second, the first much shorter, but strong; claws rather small, strong, arched, compressed, obtuse, that of hind toe much larger, the inner edge of that of the third regularly pectinated.

Space between the bill and eye, and around the latter, bare, as is the lower half of the tibia. Plumage soft, generally loose. Feathers of the upper and hind part of the head, and of the neck generally, especially on the sides and at the lower part anteriorly, much elongated very narrow, loose, with linear compact extremities. The feathers of the back are similar but broader at their base, and those from the middle of the back are so elongated as to extend several inches beyond the tail, forming a train of which the filaments are hair-like and rather stiff. Wings of moderate length; primaries broad, tapering, the inner broadly rounded, with an acumen, as are the very broad secondaries; first quill longest, second almost equal, third and fourth slightly shorter, the rest of the primaries rapidly graduated; the inner secondaries extend to nearly an inch of the

tip of the wing, when the latter is closed. Tail very short, slightly rounded, of twelve rather weak rounded feathers.

Bill black on its terminal third, the rest and the bare space on the head pale flesh-colour. Iris white. Legs and feet ultramarine blue, the scutella bluish-black, as are the claws. Feathers of the head and neck light reddish-brown, tinged with lilac, the tips fading to brownish-white. Back and wings dull greyish-blue; the long feathers of the train yellowish towards the tips; all the lower parts are greyish-blue paler than that of the upper.

Length to end of tail 31 inches, to end of wings 32; to end of claws 40; extent of wings 46; wing from flexure $14\frac{1}{2}$; tail $4\frac{1}{2}$; bill along the back 4, along the edge of lower mandible $4\frac{1}{2}$, depth at the base 1; bare part of tibia $4\frac{1}{4}$; tarsus 6; middle toe 3, its claw $\frac{1}{2}$. Weight $1\frac{3}{4}$ lb.

The Female is precisely similar to the Male in colour, but is rather smaller.

Young nearly two years old. Plate CCLVI. Fig 2.

The bill is coloured as in the adult, as is the iris, but the feet are dark olive-green, the soles greenish-yellow. The plumage presents the same form as in the adult, but is entirely pure white.

In this state the bird has been described as a distinct species under the name of Peale's Egret Heron, but must now be restored to its proper species, the adult having been described and figured by BUFFON under the name of *Aigrette rousse*, and named by LATHAM the Reddish Egret.

This species may be distinguished at the first glance from all others that occur in the United States, by the peculiar form of the feathers of the head and neck, which are loose, pendent, and fringe-like, at all seasons, excepting in the young bird before the first moult.

The number of young, as in all other species, much exceeds that of adult or coloured birds; and I have procured them in the proportion of three to one. I carried upwards of fifty specimens of this Heron to Charleston, where, as well as in Philadelphia, New York, and London, I presented some to my friends and to public institutions. I also sent several to my friend P. J. SELBY, Esq. of Twizel, Northumberland, and lately gave a pair to the Museum of the University of Edinburgh. Several specimens, which I presented to His Royal Highness the DUKE of SUSSEX, have been by him given to the British Museum.

THE DOUBLE-CRESTED CORMORANT.

PHALACROCORAX DILOPHUS.

PLATE CCLVII. MALE.

THE objects that more especially attract the notice of the voyager, as he draws near the south-west coast of Labrador, are the numerous low islands covered with countless multitudes of birds, that have assembled there for the purpose of reproduction. Some miles farther, you see a ridge of craggy and desolate cliffs, emerging from the sea, and presenting the appearance of a huge granite wall. This forms a partition between the waters of the great St Lawrence and many fine harbours hidden here and there behind it, along with numerous inlets and bays, coves and small creeks, in which the bark of the adventurer may ride in comparative safety. From the hoary summit of this bulwark the view is grand beyond description ; valleys richly carpeted with moss and thickets of low shrubs glow in tints of the richest green ; clear blue lakes bear on their bosom numerous birds of varied wing, while around their margins the females are seated on their eggs or carefully leading about their young ; banks of perennial snow arrest your eye for a moment, and perhaps produce an involuntary chill ; onward towards the horizon, mountains heaped confusedly behind mountains, mingle their gloomy tints with those of the cold sky. In that land, man may for weeks, even months, seek for his kind in vain. The deep silence that reigns around him during a calm, seldom fails to bring sadness to his heart, as his eye grows dim with gazing on the wilderness. Should the northern gale issue from its snowy chambers, darkness follows in its train, and should its whole fury pour upon you, melancholy indeed must be your lot.

To the low islands above alluded to, the beautiful Cormorant represented in the plate before you, resorts each spring, for the purpose of breeding. It arrives from the south about the beginning of May, or as soon as the waters of the Gulf are sufficiently free of ice to enable it to procure food. The winter it spends on our eastern coasts, but it rarely proceeds farther south than the Capes of North Carolina, about which it meets its southern friend the Florida Cormorant, on whose dominions, however, it does not venture.

While with us, the Double-crested Cormorants are seen flying in long lines, sometimes forming angles, and passing low over the water, at no great distance from the shore. They enter our large bays, rivers and creeks, going up as far as the tide, but are seldom or never seen fishing in fresh-water. Their stay along the Middle Districts continues from the beginning of October to the middle of April; farther east they are seen a month earlier, and disappear a fortnight later. A good number breed on the Seal Islands off the Bay of Fundy, but the greater part return to Labrador and Baffin's Bay, where Dr RICHARDSON found this species. To that excellent man and intrepid traveller, we are indebted, among other valuable fruits of his labours, for the first good description of this bird. From his account and the information which I have received from Captain JAMES CLARK ROSS, I believe that it does not go much farther north than the place where it was observed by the first mentioned traveller; and no Cormorants were seen during the late voyage to the Arctic circle. It is probable that neither the Double-crested nor the Florida Cormorants occur in any part of Europe; at least, if they have been described as birds of that quarter of the globe, I can find no account sufficiently correct to enable me to recognise them.

A few miles from one of the entrances of the Harbour of Whapatiguan, is a low and flat island about a mile in length, on which the present species breeds. As we sailed past it, we could easily observe the birds on their nests, all over the rock, which was completely white-washed with their excrement, that emitted a disagreeable odour to a great distance. I had seen several islands near the Harbour of Great Macatina inhabited by these Cormorants, but being anxious to complete the examination of one subject at a time, and knowing that we should see a greater number as we approach the Straits of Belle Isle, I put off the investigation until I should have leisure to prosecute it satisfactorily.

My son, accompanied by the captain and four sailors, sailed for Cormorant Island, on which, however, they found great difficulty in landing, for the surf broke so fearfully as to call into requisition all the judgment and good management of Mr EMERY. The moment they landed, almost all the birds of the island rose on wing, darkening the air, and alighted at some distance on the water in large bodies. They were so shy that it was not without considerable difficulty that ten of them were obtained. At the first shot, hundreds of young ones scrambled out of their nests, and huddled together in packs of fifteen or twenty. When the men

approached them, they opened their bills, squeaked, hissed, and puffed in a most outrageous manner; and the noise produced by the multitudes on the island was not merely disagreeable, but really shocking. Some of the nests contained eggs, and the young were of all sizes, from the newly hatched up to those able to fly; none, however, even of the largest, attempted to gain the water, but all preferred hiding themselves in the fissures of the rocks, or behind the nests. It was curious to see them crawl flat on the rock, assisting themselves with their bill, feet and wings, employing the first in the manner of Parrots, and the wings like the oars of a boat or the flappers of turtles. When approached, they curved and twisted their necks in the most curious manner, reminding one of the writhings of a snake, and when seized they muted so profusely as to excite disgust. A dozen or more of different sizes, however, were thrust into a bag, and carried on board the vessel. The materials and dimensions of the nests were noted on the spot, and a hatful of eggs was brought to me.

The Double-crested Cormorant forms its nest of sea-weeds, some sticks, moss, and clods of earth, with grass adhering to them, which it piles up into a solid mass, often as high as three feet from the rock, with a diameter of fifteen or eighteen inches at the top, and of two and a half feet at the base. The whole has an appearance of solidity seldom seen in the nests of water-birds. The nests are placed as near each other as the nature of the ground will permit, and a great number which appeared to have stood out against the winter storms, had been enlarged and repaired that season. Many, however, lay scattered over the rocks, having been demolished by heavy gales or the breaking of the surf during tempests. The whole surface of the rock resembled a mass of putridity: feathers, broken and rotten eggs, and dead young, lay scattered over it; and I leave you to guess how such a place must smell in a calm warm day. The eggs are three or four, average two and a half inches in length by one inch and four and a half eighths in breadth, and have an elongated form. They are covered with a calcareous coating, which is more or less soiled with filth, but when carefully scraped, shews a fine light greenish-blue tint.

The young when just hatched, are of a bluish-black colour tinged with purple, and look extremely odd. They remain blind for several days, and for about a fortnight are fed by the parents with the greatest care, the food being regurgitated into their open throats. They appear to grow rapidly, for in the course of eight or ten days we found some the size of a pullet, which, when marked, were scarcely half that size. They

are covered with long down of a brownish-black colour, and do not leave the nest, unless they are intruded on, until they are able to fly, when their parents, who long before had ceased to feed them by dropping the fish into their bill, and had merely placed it on the ground near them, leave them to shift for themselves. By the middle of August all these birds remove southward, along Newfoundland, by Cape Breton Island, and the shores of Nova Scotia, scarcely any remaining on the coast of the first during winter, when indeed not many are seen farther east than the Bay of Halifax.

The fishermen and eggers never gather their eggs, they being unfit for being eaten by any other animals than Gulls or Jagers; but they commit great havock among the young, which they salt for food or bait. The old birds are too shy to be killed in great numbers, otherwise their feathers, although they smell strongly of fish, might be turned to account. I have never eaten Cormorant's flesh, and intend to refrain from tasting it until nothing better can be procured.

The flight of this species is strong and well sustained, although not so rapid as that of the Florida Cormorant. It sails at times in a beautiful manner, and at a great height above the waters. Like other species, the Double-crested Cormorants are fond of sunning themselves, with their wings spread out. They walk awkwardly, and cannot run without the aid of their wings. In order to arise from the water, in which they sink so as nearly to be covered when swimming, they are obliged to run and beat the surface for many yards, before they get fairly on wing. Their food consists of shrimps, lents, capelings, codlings, and other fishes, scarcely any kind coming amiss unless too strong or of too great a size. Of the codlings especially they devour vast numbers, they being in astonishing shoals on the coast of Labrador at the time when the Cormorants are breeding, and indeed remaining until the departure of the birds, when they retire to deeper water. I never saw a Cormorant plunge from the air after its prey, but should be much gratified by such a sight, which, if we trust compilers, is nothing uncommon; nor have I ever seen a bird of this species perched on any thing higher than the top of the low island on which the nest is placed, none having been observed by me on any of the high rocks on which the common species breeds in America.

I have given the figure of a beautiful male in its perfect spring plumage. This is probably the only representation of the bird yet presented to the public, and the same remark applies to the Florida Cormorant.

PELECANUS (CARBO) DILOPHUS, DOUBLE-CRESTED CORMORANT, *Swains. and Richards. Fauna-Bor. Amer. part ii. p. 473.*

DOUBLE-CRESTED CORMORANT, *Nuttall, Manual, vol. ii. p. 483.*

Adult Male at the commencement of the breeding season. Plate CCLVII.

Bill about the length of the head, rather slender, somewhat compressed, straight, with the tip curved. Upper mandible with the dorsal line slightly concave, until near the tip, when it is curved, the ridge convex, and separated from the sides by a narrow groove, the sides erect, convex, the edges sharp and straight as far as the unguis, which is strong, convex above, incurved, acute. No external nostrils. Lower mandible with the angle long and very narrow towards the end, filled by an extensive membrane, which extends a short way down the throat, its dorsal line a little convex, the sides erect and convex, the edges sharp and inflected, the tip compressed and obliquely truncate.

Head rather small, oblong, narrowed before. Neck long and rather slender. Body full, depressed. Feet short, stout, placed far behind; tibia feathered in its whole length; tarsus very short, strong, much compressed, covered all round with scales, of which the anterior and lateral are large and subhexagonal, the posterior very small and roundish. Toes all placed in the same plane, and connected by reticulated webs, covered above with very numerous oblique scutella; first toe smallest, fourth longest. Claws rather small, strong, compressed, acute.

Plumage of the head, neck, lower parts and posterior portion of the back glossy, blended and silky, of the fore part of the back and wings compact, the feathers with loose glossy margins. From behind the eye to the length of an inch and a half on each side, an elongated tuft of long slender, loose recurved feathers. Space around the eye, and to a large extent along the base of the bill, together with the small gular sac, bare. Wings rather small; primaries very strong, curved, rather narrow, tapering and obtuse, second longest, third almost equal, first longer than fourth; secondaries decurved, broad, broadly rounded, the inner narrower. Tail of moderate length, very narrow, much rounded or cuneate, of twelve narrow, rounded feathers, having extremely strong shafts.

Upper mandible dusky, along the edges greyish-yellow; lower yellow, irregularly marked with dusky towards the edges. Iris bright green, margin of eyelids, bare space on the head, and gular sac, rich orange.

Feet and claws black. All the silky part of the plumage is greenish-black, at a distance appearing black, but at hand in a strong light green. The imbricated feathers of the back and wings greyish-brown, their fringe-like margins greenish-black; primary quills brownish-black; secondary like the other feathers of the wing. Tail black, the shafts of all the feathers black.

Length to end of tail 38 inches, to end of wings 29, to end of claws 33; extent of wings 51; wing from flexure 13; tail $6\frac{2}{3}$; bill along the back $2\frac{1}{2}$, along the edge of lower mandible $3\frac{1}{2}$; tarsus $2\frac{7}{8}$; outer toe $3\frac{1}{2}$, its claw $\frac{1}{2}$. Weight 5 lb. 7 oz.

The Female is somewhat smaller, but in other respects is similar to the male.

The Young, after the first moult, have the head and neck mottled with greenish-black and greyish-brown; the other parts as in the adult, but the tufts on the head wanting.

The Double-crested and the Florida Cormorants are very nearly allied, their forms, and the structure of their plumage, being precisely similar. There is, however, a very considerable difference in size, as will be seen on comparing their measurements and average weights as given by me. The bills are similar in form, but their colours differ, as do those of the eyelids; but in the breeding season these birds may readily be distinguished by the temporary tufts or crests behind the eyes, which in *P. floridanus* consist of a mere line of single feathers curved downwards, while in *P. dilo-*
phus they are of considerable breadth, and composed of about forty recurved feathers. In the absence of the crests, the difference in size affords the principal means of distinguishing them.

THE HUDSONIAN GODWIT.

LIMOSA HUDSONICA, SWAINS.

PLATE CCLVIII. ADULT MALE AND YOUNG FEMALE.

THIS species, which is of rare occurrence in any part of the United States, is scarcely ever found farther south along the coast than the State of Maryland. I had never seen it in the flesh, until I went to Boston in 1832, when I found specimens of it in the market late in September. An old gunner in my employ brought me eight or ten in the course of a month, but they were all young birds. From one of them my son drew the figure in the plate. While I was at Pictou Professor MACCULLOCH presented me with a pair of adult birds in beautiful plumage. When we were on our way towards Labrador, the fishermen and inhabitants of the Magdeleine Islands, who gave the name of Curlews to the Godwits, assured me that this species breeds there in some marshes at the extremity of the principal island, and that they were in the habit of killing them as soon as they were able to fly, when they were considered excellent food. We saw none, however, on our voyage farther north, and in Labrador and Newfoundland nobody seemed to know them.

My young friend THOMAS MACCULLOCH, who gave me, in London, several well-mounted specimens of this species, in the spring of 1835, confirmed the assertions of the people of the Magdeleine Islands, and informed me that these birds breed at times on Prince Edward's Island, from which they spread along the coast of Nova Scotia, where they remain until very severe weather comes on, when they suddenly disappear.

I have tried to give a good figure of the adult, and that made by my son will, I hope, be considered faithful by those who are acquainted with the bird in its autumnal plumage. The adult has been represented as lying down, in order to shew the difference between this species and the *Limosa melanura* of Europe, to which it is allied, but from which it may readily be distinguished at all periods by the black colour of the inner wing-coverts. In the European bird these feathers are white, and the species does not occur in the United States, perhaps not in any part of North America. The females are rather larger than the males, but nothing is known respecting the nests or eggs.

SCOLOPAX HUDSONICA, *Lath. Ind. Ornith.* vol. ii. p. 720.

LIMOSA HUDSONICA, HUDSONIAN GODWIT, *Swains. and Richards. Fauna-Bor. Amer.*
part ii. p. 396.

HUDSONIAN GODWIT, *Nuttall, Manual*, vol. ii. p. 175.

Adult Male. Plate CCLVIII. Fig. 1.

Bill double the length of the head, subcylindrical, compressed at the base, tapering to the obtuse point, which is a little enlarged, slightly recurved. Upper mandible with the dorsal line slightly curved upwards in its whole extent, the ridge convex, the sides with a narrow groove extending almost to the point, the edges rather obtuse, the tip slightly enlarged. Nostrils basal, lateral, near the edges, small, linear, pervious. Lower mandible with the angle very long and extremely narrow, the dorsal line slightly recurved, the sides with a narrow groove extending almost to the end, the edges rather blunt, the tip obtuse.

Head small, oblong, compressed. Neck rather long and slender. Body slender. Feet long and slender; tibia bare for about a third, anteriorly scutellate; tarsus long, slender, covered anteriorly and posteriorly with numerous scutella, laterally for a very small space reticulate; toes small, slender, scutellate above, flat beneath, broadly marginate, the anterior connected at the base by webs, of which the outer is much larger; first toe very small, second slightly shorter than fourth, third little longer. Claws small, compressed, slightly arched, obtuse, that of middle toe with the inner edge curved outwards and thin.

Plumage soft on the head, neck and lower parts blended, on the back imbricated; all the feathers oblong and rounded. Wings long, very acute, narrow; primaries tapering, the first longest, the second little shorter, the rest rapidly graduated; secondaries incurved, obliquely rounded, with a recurved tip, the inner elongated and tapering. Tail short, of twelve rounded feathers, slightly forked, but with the two middle feathers a little longer than those next them.

Bill greyish-yellow, dark brown along the ridge of the upper mandible, and blackish toward the tips of both. Iris brown. Feet light greyish-blue. The head and neck brownish-grey, with darker lines; a band from the bill over the eye, and the throat greyish-white; the back deep grey; the scapulars brownish-black, with small white markings on the edges of the feathers; the smaller wing-coverts, alula, primary quills and their coverts brownish-black; the secondaries lighter, and with their

inner webs pale grey ; tips of the primary coverts and bases of the quills, white, as is a broad band over the rump. Tail feathers and upper tail-coverts brownish-black, their bases white, and their tips narrowly edged with brownish-white. The lower parts are bright yellowish-red, the sides mottled with dark brown ; the abdomen and lower tail-coverts paler and variegated with dusky ; the lower wing-coverts blackish-brown, edged with whitish.

Length to end of tail $15\frac{3}{4}$ inches, to end of wings $16\frac{3}{8}$, to end of claws $19\frac{1}{4}$; wing from flexure $8\frac{1}{2}$; tail $3\frac{1}{4}$; extent of wings 28 ; bill along the back $3\frac{7}{8}$; along the edge of lower mandible $3\frac{6}{8}$; bare part of tibia $1\frac{1}{4}$; tarsus $2\frac{1}{2}$; middle toe $1\frac{4}{8}$, its claw $\frac{2}{8}$. Weight 9 oz.

Young Female in winter. Plate CCLVIII. Fig. 2.

The bill, iris and feet, as in the adult male. Upper part of the head dusky, with darker lines ; sides of the head, and the neck, greyish-yellow ; a whitish band over the eye. The lower parts are pale brownish-grey, the upper brownish-grey ; the fore part of the back and scapulars brownish-black, the feathers edged with light brownish-red ; the wing-coverts brownish-grey ; the quills as in the adult, as is the tail, anterior to which is also a broad white band.

In September 1835, I shot, near Edinburgh, a young individual of *Limosa rufa*, which I had previously observed for some time. It thrust its bill into the wet sand in the same manner as the Woodcocks ; and I was much surprised, on taking it up, to see that its bill was perfectly straight in its whole length. When I opened it, however, in order to place a little cotton in its throat, a sudden spring-like movement of the mandibles made them curve upwards. Never having kept birds of this genus alive, I am unable to say whether the bill be naturally straight or not.

THE HORNED GREBE.

PODICEPS CORNUTUS, LINN.

PLATE CCLIX. MALE AND YOUNG.

THE period at which this little Grebe makes its first appearance, after the breeding season, on the waters of the Western States, such as the Ohio, the Mississippi, and their numerous tributaries, is the beginning of October, when I have seen them arriving and passing onward on wing at a considerable height in the air, following the course of the streams. The generally received idea that birds of this genus perform their migrations on the water, is extremely absurd. I have already offered some remarks on this subject, but as too much cannot be said, when an erroneous notion extensively adopted has to be disproved, I here repeat that I have seen flocks of Grebes on wing and migrating high in the air, apparently with as much ease, as many longer-winged birds, and with considerable velocity.

Towards evening, on the 14th of October 1820, I was floating in a small boat on the Ohio. The weather was perfectly calm, and I was startled by a whistling sound over head, resembling that of a Hawk stooping on its prey, when, on looking up, I saw a flock of Grebes, about thirty in number, gliding towards the water as if about to alight within a quarter of a mile from me. In a few minutes they had come within a few yards of the surface of the water, when suddenly checking their speed, they pursued their course until out of sight; but in a short time I saw them returning towards me, and in less than a minute they all passed at a distance of forty or fifty yards, took a round and alighted pell-mell. The next moment, they were all engaged in washing and trimming themselves, in the manner of Ducks, Cormorants, and other aquatic birds. As I rowed towards them, they scarcely took notice of me, so that they were easily approached; and finding a number of them close together, I fired and killed four. The rest paddled off for some yards, rose on wing, and flew down the stream in a pretty close body, looking as if not disposed to settle again for some time. On picking up the dead birds, I found them to be of the present species, three being young, the other an adult with

the winter plumage beginning to appear. Here I may remark, that Grebes in general do not moult so early as most other birds after they have young; thus the Crested Grebe often passes to the south in September, with its head still adorned with a large portion of the feathers of its spring and summer tippet. While residing at different places on the Ohio, I have many times witnessed the passage of the Horned and the Crested.

The Horned Grebe is abundant during autumn and winter on the large rivers or inlets of the Southern States, but rare along the coasts of the Middle and Eastern Districts. On the rivers about Charleston in South Carolina it is seen at those seasons in considerable numbers, although not in larger flocks than from four to seven individuals. The same is observable from that place to the mouths of the Mississippi. It is particularly fond of those streams of which the borders are overgrown by rank sedges and other plants, and are subject to the influx of the tide. In such places they enjoy greater security while searching for their food, than in ponds, to which, however, they for the most part retire at the approach of the pairing season, which commences early in February. At that time one might be apt to think that these birds could scarcely fly, as they are then rarely seen on wing; but when they are pursued, and there happens to be a breeze, they rise from the water with considerable ease, and fly to a distance of several hundred yards. In December and January I have never procured any having the least remains of their summer head-dress; but by the 10th of March, when they were on their journey towards the north, the long feathers of the head were apparent. These tufts seem to attain their full development in the course of a fortnight or three weeks, the old birds becoming plumed sooner than the young, some of which leave the country in their winter dress.

On the ground, this species is not better off than the Dobchick, it being obliged to stand nearly erect, the hind part of the body resting, and the tarsi and toes extended laterally. They dive with great celerity, and when once acquainted with the effects of the gun, are not easily shot. A report is at times sufficient to make the old birds dive at once, although they may be quite beyond the reach of a shot. The young birds are more easily procured at their first appearance; but the most efficient method of obtaining them is to employ fishing nets, in the meshes of which they become entangled.

Excepting a species of Hawk nearly allied to *Circus cyaneus*, I know of no other bird that has the eye of such colour, the iris being externally

of a vivid red, with an inner circle of white, which gives it a very singular appearance. On attentively examining the eyes of our Divers and Grebes, I have not found any with similar eyes. The Horned Grebe does not seem to see better than any other species, nor does it appear to be more diurnal than the rest, nor are the objects on which it feeds more minute, for I have found as small seeds in the stomach of the large Grebe as in that of the present species. The reason of this strange colouring of the iris, therefore, I am unable to conjecture.

Although the greater number of these birds go far northward to breed, some remain within the limits of the United States during the whole year, rearing their young on the borders of ponds, particularly in the northern parts of the State of Ohio, in the vicinity of Lake Erie. Two nests which I found were placed at a distance of about four yards from the water's edge, on the top of broken down tussocks of rank weeds. The materials of which they were composed were of the same nature, and rudely interwoven to a height of upwards of seven inches. They were rather more than a foot in diameter at the base, the cavity only four inches across, shallow, but more neatly finished with finer plants, of which a quantity lay on the borders, and was probably used by the bird to cover the eggs when about to leave them. There were five eggs in one nest, seven in the other; all contained chicks (on the 29th of July); they measured one inch and three quarters in length, by one inch and two and a half eighths; their shell was smooth, and of a uniform yellowish cream colour, without spots or marks of any kind. The nests were not more than fifty yards apart, on the south-western side of the pond. I am thus particular because of the near relation of this bird to the *Podiceps auritus* of LATHAM, with which it may be confounded by a not over-careful observer, as may the eggs too, those of the latter species being precisely of the same length, but fully an eighth of an inch narrower, which of course gives them a more elongated appearance. I have observed the same differences in the eggs of these two species in Europe. I could not ascertain if both the parent birds incubate; but as I saw two pairs on the pond, I am inclined to think that they do. The nests were not fastened to the weeds around them, nor do I conceive it probable that they could be floated, as various writers assert they are at times.

I have not seen the young of this species when small; but from the knowledge I have of those of other Grebes, I feel pretty certain that the notions entertained of their being carried either on the back or under the

wings of their parents in cases of danger must be erroneous, as Grebes in all such cases dive or fly at once, when it would be impossible for the old and young to keep thus attached to each other.

I have observed in the stomachs of almost all that I have examined, a quantity of hair-like substances rolled together like the pellets of owls, but have not ascertained whether or not these masses are disgorged. They certainly cannot pass through the intestines. But unless birds of this kind are kept in an aviary and watched, this matter must remain unknown. The food of this species, while on salt-water, is composed of shrimps, small fishes, and minute crustacea. While on fresh-water, they procure insects, leeches, small frogs, tadpoles, and aquatic lizards; they also pick up the seeds of grasses, and I have found as many in the stomach of an individual as would fill the shell of one of its eggs. Their flight is performed by regular short flappings, executed with great quickness.

I have represented an adult male in full spring plumage, and a young bird shot in December. The males are rather larger than the females, which are similar in colour, but rarely have the head so well feathered during the breeding season.

PODICEPS CORNUTUS, *Lath. Ind. Ornith.* vol. ii. p. 782.—*Ch. Bonaparte*, *Synopsis of Birds of the United States*, p. 417.—*Swains. and Richards. Fauna Bor. Amer.* part ii. p. 411.

HORNED GREBE, or DOBCHICK, *Nuttall, Manual*, vol. ii. p. 254.

Adult Male in Spring. Plate CCLIX. Fig. 1.

Bill shorter than the head, straight, acute, rather slender. Upper mandible with the dorsal line straight for one-half of its length, towards the end declinate and slightly convex, the ridge convex, the sides sloping, the edges sharp and inflected, the tip acute. Nasal groove broad, extending to beyond the middle of the mandible; nostrils subbasal, linear-elliptical, pervious. Lower mandible with the angle long and very narrow, the dorsal line short, ascending, straight, the sides erect, slightly convex, the edges sharp, inflected, the tip narrow, acute.

Head of moderate size, oblong, compressed. Neck rather long and slender. Body depressed. Feet large, short, placed far behind; tibia feathered to the joint; tarsus short, extremely compressed, anteriorly with a narrow scutellate ridge, laterally with numerous broad scutella; posteriorly with a narrow ridge having a double row of small prominent

scales. Hind toe very small, with an inferior small membrane ; fore toes long, the outer longest, scutellate above, united at the base by short webs, externally margined, internally with broad rounded expansions, which are marked with parallel oblique lines, and crenate on the edges. Claws flattened, that of the middle toe broadest, with an extremely thin broad terminal edge.

Plumage of the head and neck very soft and downy, of the breast and sides silky and highly glossed, of the abdomen downy, of the upper parts imbricated, but with loose edges. Wings small ; primaries much curved, the first longest, the second almost equal. Tail, a small tuft of loose feathers. On the head, at this season, is a tuft of soft feathers on each side behind the eye, and a larger on each side of the upper part of the neck.

Bill bluish-black, its tip yellow. Short loreal space bright carmine, as is the iris, its inner margin white ; edges of eyelids greyish-blue. Feet dusky externally, internally and on the anterior and posterior ridges of the tarsus dull yellow ; claws dusky. Forehead greyish-brown ; upper parts of the head bluish-black, as are the sides, fore neck anteriorly, and the elongated ruff feathers ; a broad band over the eyes, and the elongated tufts behind them yellowish-brown. Fore neck brownish-red ; lower parts white, the sides reddish-brown ; abdomen dull grey. The upper parts are brownish-black, the feathers edged with greyish, the middle secondary quills white.

Length to end of tail $14\frac{3}{4}$, to end of claws 19 ; extent of wings $25\frac{1}{4}$; wing from flexure $5\frac{3}{4}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{4}$; tarsus $1\frac{1}{4}$; outer toe $1\frac{1}{2}$, its claw $\frac{3}{4}$. Weight 14 oz.

Young Female in winter. Plate CCLIX. Fig. 2.

The feathers of the hind head are a little elongated, but at this age there are no tufts on the head. In other respects the plumage is as in the adult male. The bill is bluish-grey, as is the bare loreal space ; the eye bright carmine, the iris with an inner white edge ; the feet bluish-grey. The upper part of the head, and the hind neck, are greyish-black, as are the upper parts in general. The feathers of the back edged with light grey. The throat, the sides of the head, a broad patch on each side of the neck nearly meeting behind, the breast white ; the sides and downy feathers of the abdomen brownish-grey. Some of the secondaries are white, as in the adult male.

THE FORKED-TAILED PETREL.

THALASSIDROMA LEACHII, BONAP.

PLATE CCLX. MALE AND FEMALE.

BEFORE describing the habits of this bird, I think it necessary to speak of three distinct species which are at times found near our coasts, and of which I have found two breeding within the Union. The present species is the largest; that named after WILSON the next in size; and the one called the Stormy Petrel the least. Until I had met with the whole of these species near our coast, I, like others, thought that the last mentioned kept nearer to Europe than it in reality does at certain seasons.

In August 1831, I was on board of the American packet-ship the *Columbia*, commanded by my friend JOSEPH DELANO, Esq. who had promised that, in case of a calm occurring, he would allow me to have a boat manned to go in search of birds. The day is not given, because I never keep a journal while crossing the Atlantic; but as I had left England on the first of the month, and was then on the banks of Newfoundland, it must have been towards the latter part of it, when the weather suddenly became quite calm and beautiful. "Mother Carey's Chickens" were by hundreds around the noble ship, and although ill in consequence of the sickness which never leaves me at sea, I asked for a boat and some hands to row me about for an hour or so. This was granted, guns and ammunition were placed in the yawl, and my assistant Mr HENRY WARD of London, an officer, and two sailors, accompanied me. We had three guns which were alternately loaded and handed to me. In the course of about an hour twenty-five or thirty Petrels were shot, together with some Fulmars. Had you been looking on, you might perhaps have laughed at me on seeing that the moment after I fired, I was obliged to lean over the side of the bark to relieve myself from the distressing state of my stomach. On returning to the ship, my companions nimbly ascended the chains; but although when on land I am pretty firm and active, I was now quite unfit for service, and therefore was hoisted in a chair. Once on deck, I laid myself down on a mattress, my wife attended to me, and I gradually became relieved, as the ship stood, to use the words of my kind captain, "as still as if on the stocks." There were the dead birds nicely arranged

on a board by my side ; the wounded ones were placed in a cage, and I began to examine them all with care. To my great surprise, I found among them all the three species mentioned above. Sixteen of these birds were beautifully prepared by Mr WARD, and the rest were placed in spirits, after I had made correct outlines of each species, and taken their exact dimensions and weight. The drawings, however, I was unable to finish on account of the giddiness, which seldom leaves me while at sea. The calm continued the whole of the next day, and, laying myself down on the top of the round-house, I had ample opportunities of observing the habits of the three species, while thus at a distance from land.

My esteemed friend the Prince of Musignano has stated that the Forked-tailed Petrel is less numerous near the American coast than the species named after WILSON. It is true that it rarely goes so far south, but in the vicinity of Massachusetts, and from thence to Newfoundland, it is by far the most abundant of the two ; and it breeds on all suitable places from the Islands of Mount Desert to the last mentioned country.

The species of this genus with which I am acquainted all ramble over the seas, both by night and by day, until the breeding season commences, when they remain in their burrows, under rocks, or in their fissures, until towards sunset, when they start off in search of food, returning to their mates or young in the morning, and feeding them then. I feel pretty confident that these birds, like Owls, can hold out against hunger for many hours, and are satisfied with one abundant meal in the day. WILSON was of a different opinion, but I believe he never found these birds breeding.

The Forked-tailed Petrel emits its notes night and day, and at not very long intervals, although it is less noisy than WILSON'S Petrel. They resemble the syllables *pewr-wit, pewr-wit*. Its flight differs from that of the other two species, it being performed in broader wheelings, and with firmer flappings, in which respect it resembles that of the Night Hawk, *Caprimulgus virginianus*, while that bird is passing low over the meadows or the waters. It is more shy than the other species, and when it wheels off after having approached the stern of a ship, its wanderings are much more extended before it returns. I have never seen it fly close around a vessel, as the others are in the habit of doing, especially at the approach of night ; nor do I think that it ever alights on the rigging of ships, but spends the hours of darkness either on the water, or on low rocks or islands. It also less frequently alights on the water, or pats it

with its feet, probably on account of the shortness of its legs, although it frequently allows them to hang down. In this it resembles the *Thalassidroma pelagica*, and WILSON's Petrel has a similar habit during calm weather. I have seen all the three species immerse their head into the water, to seize their food, and sometimes keep it longer under than I had expected.

About the first of June, the species separate, collect in numbers, and return to their breeding places. I state so from the report of persons on whose testimony I can rely, and who have assured me that, like the Guillemots, they revisit their haunts each spring for years in succession. They now fly in front of the high rocks, in the manner of our Purple Martin when it first arrives at its well known box, passing and repassing a thousand times in the day, enter their dark and narrow mansions, or stand in the passage, and emit their cries, as the bird just mentioned is wont to do on similar occasions. Now they alight on some broad shelf, and walk as if about to fall down, but with considerable ease, and at times with rapidity. Now and then the mated birds approach each other, and, I believe, disgorge some food into each other's mouths, although I am not absolutely certain that they do so, having only observed them at such times by means of a glass. They collect grasses and pebbles, of which they form a flat nest, on which a single white egg is deposited, which measures an inch and a quarter in length, by seven-eighths in breadth, is nearly equally rounded at both ends, and looks very large for the size of the bird. When boiled, it has a musky smell, but is palatable. When you pass close to the rocks in which they are, you easily hear their shrill querulous notes; but the report of a gun silences them at once, and induces those on the ledges to betake themselves to their holes.

The Forked-tailed Petrel, like the other species, feeds chiefly on floating mollusca, small fishes, crustacea, which they pick up among the floating sea-weeds, and greasy substances, which they occasionally find around fishing-boats or ships out at sea. When seized in the hand, it ejects an oily fluid through the tubular nostrils, and sometimes disgorges a quantity of food. I could not prevail on any of those which I had caught to take food.

These birds are caught from the sterns of vessels, with long slender threads, the manner of using which I shall describe when I come to speak of WILSON's Petrel. I never could entice one of them to swallow a hook. Very few are found on the coasts of England or Scotland, where, however, the species is said to breed.

THALASSIDROMA LEACHII, *Ch. Bonaparte*, *Synops. of Birds of the United States*,
p. 367.

PROCELLARIA LEACHII, *Temm. Man. d'Ornith. part ii. p. 812.*

Adult Male. Plate CCLX. Fig. 1.

Bill shorter than the head, slender, straight, with the tips curved, as broad as high at the base, extremely compressed at the end. Upper mandible with the nostrils forming a tube on its ridge at the base, beyond which the dorsal line is for a short space straight, then decurved, the ridge narrow and separated from the convex sides by a narrow groove, the edges sharp, inflected, the tip compressed, incurved. Lower mandible with the angle rather long, narrow and pointed, the dorsal line beyond it decurved, the sides erect, the edges sharp, the tip decurved.

Head of ordinary size, roundish, anteriorly narrowed. Neck short. Body rather slender. Feet rather long, slender; tibia bare at its lower part; tarsus slender, reticulate all round. Hind toe minute, with a conical claw; anterior toes of moderate length, slender, scutellate above, connected by striated webs with concave margins; the third and fourth toes longest, and about equal. Claws slender, arched, compressed, acute.

Plumage very soft, blended, the feathers distinct only on the wings, which are very long; primary quills tapering but rounded, the outer four a little incurved at their extremities, the second longest, the third almost equal, the first and fourth about the same length, the rest rapidly graduated; outer secondaries incurved, obliquely rounded; inner longer, tapering, straight. Tail deeply forked, of twelve broad, rounded feathers,

Bill and feet black. Iris dark brown. The general colour of the plumage is dark greyish-brown, the quills and tail brownish-black, the smaller wing-coverts and inner secondaries light greyish-brown; the rump, sides of the abdomen, and exterior lower tail-coverts, white.

Length to end of tail 8 inches, to end of wings $8\frac{1}{2}$; extent of wings $18\frac{1}{2}$; wing from flexure $6\frac{1}{2}$; tail 3; bill along the back $1\frac{5}{8}$, along the edge of lower mandible $1\frac{1}{8}$; tarsus 1; middle toe $1\frac{1}{8}$, its claw $\frac{5}{16}$. Weight $1\frac{5}{8}$ oz.

The Female is exactly similar to the male.

Adult Female. Plate CCLX. Fig. 2.

A MAPLE-SUGAR CAMP.

WHILE advancing the best way I could through the magnificent woods that cover the undulating grounds in the vicinity of the Green River in Kentucky, I was overtaken by night. With slow and cautious steps I proceeded, feeling some doubt as to my course, when the moon came forth, as if purposely to afford me her friendly light. The air I thought was uncommonly keen, and the gentle breeze that now and then shook the tops of the tall trees, more than once made me think of halting for the night, and forming a camp. At times I thought of the campaigns of my old friend DANIEL BOON, his strange adventures in these very woods, and the extraordinary walk which he performed to save his fellow-creatures at Fort Massacre from the scalping knives of the irritated Indians. Now and then a racoon or opossum, causing the fallen leaves to rustle, made me pause for a moment; and thus I was forcing my way, thinking on many things dismal as well as pleasing, when the glimmer of a distant fire suddenly roused me from my reveries, and inspired me with fresh animation. As I approached it, I observed forms of different kinds moving to and fro before it, like spectres; and ere long, bursts of laughter, shouts, and songs apprised me of some merrymaking. I thought at first that I had probably stumbled upon a camp-meeting; but I soon perceived that the mirth proceeded from a band of sugar-makers. Every man, woman, and child stared as I passed them, but all were friendly, and, without more ceremony than was needful, I walked up to the fire, at which I found two or three old women, with their husbands, attending to the kettles. Their plain dresses of Kentucky homespun were far more pleasing to my sight than the ribboned turbans of city dames, or the powdered wigs and embroidered waistcoats of antique beaux. I was heartily welcomed, and supplied with a goodly pone of bread, a plate of molasses, and some sweet potatoes:

Fatigued with my long ramble, I lay down under the lee of the smoke, and soon fell into a sound sleep. When day returned, the frost lay thick around; but the party arose cheerful and invigorated, and after performing their orisons, resumed their labour. The scenery around was most pleasing; the ground all round looked as if it had been cleared of under-wood; the maples, straight and tall, seemed as if planted in rows; be-

tween them meandered several rills, which gently murmured as they hastened toward the larger stream ; and as the sun dissolved the frozen dews, the few feathered songsters joined the chorus of the woodsmen's daughters. Whenever a burst of laughter suddenly echoed through the woods, an Owl or Wild Turkey would respond to it, with a signal welcome to the young men of the party. With large ladles the sugar-makers stirred the thickening juice of the maple ; pails of sap were collected from the trees and brought in by the young people ; while here and there some sturdy fellow was seen first hacking a cut in a tree, and afterwards boring with an auger a hole, into which he introduced a piece of hollow cane, by which the sap was to be drained off. About half a dozen men had felled a noble yellow poplar, and sawed its great trunk into many pieces, which, after being split, they were scooping into troughs to be placed under the cane-cocks, to receive the maple juice.

Now, good Reader, should you ever chance to travel through the maple grounds that lie near the banks of that lovely stream the Green River of Kentucky, either in January or in March, or through those on the broader Monongahela in April ; nay, should you find yourself by the limpid streamlets that roll down the declivities of the Pocano Mountains to join the Lehigh, and there meet with a sugar-camp, take my advice and tarry for a while. If you be on foot or on horseback, and are thirsty, you can nowhere find a more wholesome or more agreeable beverage than the juice of the maple. A man when in the Floridas may drink molasses diffused in water ; in Labrador he may drink what he can get ; and at New York or Philadelphia he may drink what he chooses ; but in the woods a draught from the sugar-maple is delicious and most refreshing. How often, when travelling, have I quenched my thirst with the limpid juice of the receiving troughs, from which I parted with regret ; nay, even my horse, I have thought, seemed to desire to linger as long as he could.

But let me endeavour to describe to you the manner in which the sugar is obtained. The trees that yield it (*Acer saccharinum*) are found more or less abundantly in all parts of the Union from Louisiana to Maine, growing on elevated rich grounds. An incision is made into the trunk, at a height of from two to six feet ; a pipe of cane or of any other kind is thrust into the aperture ; a trough is placed beneath and receives the juice, which trickles by drops, and is as limpid as the purest spring water. When all the trees of a certain space have been tapped, and the troughs filled, the peo-

ple collect the juice, and pour it into large vessels. A camp has already been pitched in the midst of a grove, several iron boilers have been fixed on stone or brick supports, and the business proceeds with vigour. At times several neighbouring families join, and enjoy the labour as if it were a past-time, remaining out day and night for several weeks; for the troughs and kettles must be attended to from the moment when they are first put in requisition until the sugar is produced. The men and boys perform the most laborious part of the business, but the women and girls are not less busy.

It takes ten gallons of sap to produce a pound of *fine-grained sugar*; but an inferior kind in lumps, called *cake-sugar*, is obtained in greater quantity. When the season is far advanced, the juice will no longer grain by boiling, and only produces a syrup. I have seen maple sugar so good, that some months after it was manufactured it resembled candy; and well do I remember the time when it was an article of commerce throughout Kentucky, where, twenty-five or thirty years ago, it sold at from $6\frac{1}{4}$ to $12\frac{1}{2}$ cents per pound, according to its quality, and was daily purchased in the markets or stores.

Trees that have been thus bored rarely last many years; for the cuts and perforations made in their trunks injure their health, so that after some years of *weeping* they become sickly, exhibit monstrosities about their lower parts, gradually decay, and at length die. I have no doubt, however, that, with proper care, the same quantity of sap might be obtained with less injury to the trees; and it is now fully time that the farmers and land-owners should begin to look to the preservation of their sugar-maples.

THE WHOOPING CRANE.

GRUS AMERICANA, TEMM.

PLATE CCLXI. YOUNG.

THE specimen from which the figure in this plate was drawn, was that mentioned at p. 209, as having been presented to me by Captain CLACK. It has already been described at p. 213. In this state, the Whooping Crane has been considered as a distinct species, to which the name of Brown or Canada Crane, *Grus canadensis*, has been given.

On referring to one of my journals, written on the Gulf of Mexico, I find it stated that one of these birds came on board one dark night, and, after passing the man at the helm, fell into the yawl hanging at the stern of the ship, where in the morning it was discovered and secured. Although to appearance in good health, it refused every kind of food, and in a few days died. Knowing the great power of flight of this species, I could only conjecture that some disease operating powerfully at the moment, had caused the bird to take refuge in the boat.

THE TROPIC BIRD.

PHAETON ÆTHEREUS, LINN.

. PLATE CCLXII. ADULT MALE AND FEMALE.

THE specimens from which the figures in the plate were taken, were obtained on the Tortugas, in the summer of 1832, by my kind friend ROBERT DAY, Esq. of the United States' Revenue Cutter, the Marion. They were shot out of a flock of eight or ten, and were in fine condition. I have represented the Male and Female, in what I suppose to be their full summer or breeding plumage; but not having had an opportunity of studying the habits of this remarkable bird, I am unable to give any information respecting them.

PHAETON ÆTHEREUS, Linn. Syst. Nat. vol. i. p. 219.—Lath. Ind. Ornith. vol. ii. p. 893.

—Ch. Bonaparte, Synops. of Birds of the United States, p. 409.

TROPIC BIRD, Nuttall, Manual, vol. ii. p. 503.

Adult Male in summer. Plate CCLXII. Fig. 1.

Bill as long as the head, stout, very much compressed, slightly curved, tapering, acute. Upper mandible with the dorsal line slightly arched, the ridge narrow, but rounded, the sides sloping and slightly convex at the base, nearly perpendicular towards the end, the edges sharp, irregularly broken, the tip acute. Nasal groove short, near the ridge; nostrils linear, very small. Lower mandible with the angle of moderate length, extremely narrow, the dorsal line straight and ascending, the sides erect and slightly convex, the edges sharp but irregularly serrated, the tip very acute.

Head rather large, ovate. Neck short and thick. Body rather full. Feet very short; tibia bare for a considerable space; tarsus extremely short, roundish, covered all round with small round scales; toes rather small, placed in the same place, and connected by reticulated webs; the first toe very small, the third and fourth about equal, all scutellate above. Claws small, arched, compressed, rather sharp, that of middle toe largest, with an undulated thin inner edge.

Plumage soft, blended, on the back and wings rather compact. Wings

long, acute ; primaries strong, tapering, the first longest, the rest rapidly graduated ; secondaries very short, incurved, rounded, the inner longer. Tail of twelve feathers, wedge-shaped, the two middle feathers extremely elongated, narrow, and tapering.

Bill orange-red. Iris brown. Tarsi and base of toes yellow, the rest and the webs black, as are the claws. The general colour of the plumage is pale pink, or white tinged with carmine, the two middle tail feathers redder. A curved spot before the eye, and band behind it, black. A band of the same colour extends across the wing from the flexure, running narrow along the middle coverts, much enlarged on the inner secondaries and their coverts, and including the extremities of the scapulars. The outer webs, shafts, and a portion of the inner webs of the first four primary quills, are also black, and there is a spot of the same on some of the primary coverts. The shafts of the two middle tail feathers are black, excepting towards the end ; and some of the long hypochondrial feathers are greyish-black in the centre.

Length to end of tail $29\frac{1}{2}$ inches, to end of wings 16 ; to end of claw 14 ; extent of wings 38 ; wing from flexure $11\frac{1}{4}$; tail $19\frac{1}{8}$; bill along the ridge 2, along the edge of lower mandible $2\frac{1}{2}$; tarsus $1\frac{1}{9}$; middle toe $1\frac{4}{12}$, its claw $\frac{4}{12}$. Weight 15 oz.

Adult Female. Plate CCLXII. Fig. 2.

The Female resembles the male, but is less tinged with red. The bill is yellow, the iris and feet as in the male. The tail-feathers are also less elongated.

Length to end of tail 26 inches, to end of wings $14\frac{1}{4}$, to end of claws 13 ; wing from flexure 11 ; tail 16 ; extent of wings 34 ; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $2\frac{1}{2}$; tarsus $1\frac{2}{3}$; middle toe $1\frac{4}{12}$, its claw $\frac{4}{12}$. Weight 12 oz.

THE CURLEW SANDPIPER.

TRINGA SUBARQUATA, TEMM.

PLATE CCLXIII. ADULT AND YOUNG.

IN the course of my extensive rambles along our coasts and in the interior, I have seen only three birds of this species, all of which I have kept with care, considering the Cape Sandpiper or Pigmy Curlew as the rarest of its genus with us. It appears to resort to particular districts; two of my birds were shot at Great Egg Harbour in New Jersey, in the spring of 1829, the other on Long Island near Sandy Hook. No other birds were near them, and I approached them without much difficulty. They were wading along the shores up to the knees, picking up floating garbage and sand worms. In their stomachs I found fragments of minute shells, slender red worms, and bits of marine plants. The one killed on Long Island was a fine male in full plumage, and from it I made the figure that has been engraved in the plate. The others were females or young birds of the preceding year. One, in plain plumage, was drawn; the other, mottled beneath with patches of white and dull rufous, I considered as a female which might perhaps have perfected its colouring that season. I have seen a few specimens in New York, and two in Boston; and my friend JOHN BACHMAN has one or two in his possession.

TRINGA SUBARQUATA, Temm. Man. d'Ornith. part ii. p. 609.—*Ch. Bonaparte*, Synopsis of Birds of the United States, p. 317.

NUMENIUS AFRICANUS Lath. Ind. Ornith. vol. ii. 712.

CAPE CURLEW OR SANDPIPER, *Nuttall*, Manual, p. 104.

Adult Male. Plate CCLXIII. Fig. 1.

Bill longer than the head, slender, subcylindrical, flexible, very slightly decurved, compressed at the base, the point obtuse. Upper mandible with the dorsal line at first slightly sloping, then nearly straight, and towards the end slightly decurved, the ridge convex but narrow, the sides sloping, the edges rather blunt and soft. Nasal groove extending to near the tip; nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line straight, the sides nearly erect, with a long narrow groove, the tip tapering but rounded.

Head of moderate size, oblong, compressed. Eyes of moderate size. Neck of moderate length, rather slender. Body rather slender. Feet rather long, slender; tibia bare about a third of its length; tarsus compressed, anteriorly and posteriorly covered with numerous scutella; hind toe very small; the rest of moderate length, slender, the fourth a little longer than the second, the third longest, all free, scutellate above, flat beneath, slightly marginate; claws small, slightly arched, compressed, acute, that of third toe largest, with the inner edge slightly dilated.

Plumage very soft, blended beneath, slightly distinct above. Wings long and pointed; primaries tapering, obtuse, the first longest, the second scarcely shorter, the rest rapidly graduated; outer secondaries short, incurved, obliquely truncate, the inner web extending beyond the outer; the inner secondaries elongated, tapering. Tail rather short, slightly rounded, of twelve rounded feathers, the two middle a little longer.

Bill dark olive-green, dusky towards the point. Iris hazel. Feet light olive, claws dusky. The head, neck and breast, are bright yellowish-red, the sides whitish, the lower tail-coverts white, with a brownish-black spot towards the end. The central parts of the feathers on the upper part of the head are dark brown, and there are slight streaks of the same on the hind neck and sides of the breast. The upper parts are mottled with brownish-black and dull red, the rump pale brownish-grey, as are the smaller wing-coverts. Quills greyish-brown, the primaries dark, the outer secondaries light and tipped with white, the inner darker and glossed with green. Upper tail-coverts white, spotted with brown and red; tail pale brownish grey, glossed with green.

Length to end of tail $8\frac{3}{4}$ inches, to end of wings $9\frac{2}{7}$; extent of wings 16; wing from flexure 5; tail $2\frac{2}{7}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{5}{7}$; bare parts of tibia $\frac{1}{2}$; tarsus $1\frac{1}{7}$, middle toe 1, its claw $\frac{1}{7}$. Weight $2\frac{1}{4}$ oz.

Adult Female, Plate CCLXIII. Young in autumn.

The bill, iris, and feet as in the adult. On the upper parts the feathers are brown, edged with darker, and margined with greyish yellow; the lore, cheeks and sides of the neck and body are greyish-yellow, with dusky lines, a broad band from the mandible over the eye, the fore part of the neck, and the rest of the lower parts, white. Quills and tail as in the adult, but lighter.

Length to end of tail $7\frac{3}{4}$ inches; extent of wings $14\frac{1}{2}$. Weight $1\frac{3}{4}$ oz.

THE FULMAR PETREL.

PROCELLARIA GLACIALIS, LINN.

PLATE CCLXIV. MALE.

THOUGH not a large bird, the Fulmar is possessed of considerable strength, and has a powerful and sustained flight. In autumn and winter it is seen on our eastern coasts, from which it retires early in summer, to betake itself to the northern retreats in which it rears its young. I have never seen it farther south than Long Island, but I have often found it on the banks of Newfoundland, and in the space intervening between them and our shores. From the beginning of September to that of May it may be said to be pretty common, especially around the banks, to which the cod-fishers resort, and where it feeds chiefly on the rejected garbage.

One calm day in August, when on a voyage from England to New York, of which I have already spoken when describing the Forked-tailed Petrel, I procured several Fulmars. They came up and alighted near the boat, whenever we threw any thing overboard, and did not seem to be in the least alarmed by the report of a gun. In one instance I shot one on the water, when it was so near that I could distinctly see the colour of its eye. A great number of them were swimming in small detached flocks of eight or ten, their colour at a distance appearing as if pure white, and contrasting beautifully with the dark blue of the sea. They floated very buoyantly, some swimming about with great ease, others to appearance sound asleep. Most of them had the wing and tail feathers ragged, and some were much soiled with greasy matter, which gave them an unpleasant appearance. Those which were caught, on being wounded, emitted quantities of oily matter by their nostrils, and disgorged much of the same substance; but did not attempt to bite, which seemed strange in birds having the bill so powerful and hooked. They fly with less grace than the Shearwaters, proceeding in a direct line, and at a small height, towards the objects on which they feed.

I was much disappointed at not finding the Fulmar along the rocky shores of Labrador, where I had expected to meet with it, as it is regularly observed in spring moving northward in files opposite the entrance of the Straits of Belle Isle. Its passage towards the Arctic Regions has

been observed by Captain SABINE on the coast of Greenland. "Whilst the ships," he says, "were detained by the ice in Jacob's Bay, in latitude 71°, from the 24th of June to the 3d of July, Fulmars were passing in a continual stream to the northward, in numbers inferior only to the flight of the Passenger Pigeon in America." While on my way to Labrador, I was told that they bred on the Seal Islands off the entrance of the Bay of Fundy. The egg, which is of a regular ovate form, with a smooth brittle pure white shell, measures two inches and seven-eighths in length, by two inches in breadth.

My much esteemed friend Mr SELBY, in his *Illustrations of British Ornithology*, gives the following account of this species. "The steep and rocky St Kilda, one of the western islands of Scotland, is the only locality within the British dominions annually resorted to by the Fulmar, the rest of the Scottish and our more southern coasts being rarely visited even by stragglers. Upon St Kilda these birds are found in vast numbers during the spring and summer months, breeding in the caverns and holes of the rocks; and, from the various uses to which the down, feathers, and oil of the young are applied, contribute essentially to the comfort of the inhabitants. They lay but one egg each, white, and of a large size, with a shell of very brittle texture. The young are hatched about the middle of June, and are fed with oil thrown up by the parents (the produce of the food upon which they subsist), and, as soon as fledged, are eagerly sought for by the natives, although often at the risk of life, in scaling the tremendous and overhanging cliffs in which they nestle. Like most of the group, these birds have the power of ejecting oil with much force through their tubular nostrils, which is used as the principal mode of defence; it becomes an essential point, therefore, that they should be taken and killed by surprise, in order to prevent the loss of a liquid so requisite for the comfort of the inhabitants, by supplying them with the necessary fuel for their lamps. The Fulmar is of voracious appetite, feeding upon all sorts of animal substance, particularly of an oily nature, such as the blubber of whales, seals, &c.; and for this purpose it follows in great numbers the track of the whale vessels, and is so greedy of its favourite food, as to be often seen alighting upon the wounded animal, when not quite dead, and immediately proceeding to break the skin with its strong hooked bill, and gorging itself with the blubber to repletion."

The Rev. Mr SCORESBY, in his "*Arctic Regions*," vol. i. p. 528, gives the following account of its habits as observed by him in the polar seas.

“ The Fulmar is the constant companion of the whale-fisher. It joins his ship immediately on passing the Shetland Islands, and accompanies it through the trackless ocean to the highest accessible latitudes. It keeps an eager watch for any thing thrown overboard ; the smallest particle of fatty substance can scarcely escape it. As such, a hook baited with a piece of fat meat or blubber, and towed by a long twine over the ship's stern, is a means employed by the sailor boys for taking them. In the spring of the year, before they have glutted themselves too frequently with the fat of the whale, they may be eaten ; and when cleared of the skin, and of every particle of yellow fatty substance lying beneath it, and well soaked in water, they are pretty good, particularly in ‘ sea pies.’ They are remarkably easy and swift on the wing. They can fly to windward in the highest storms, and rest on the water with great composure in the most tremendous seas. But it is observed that, in heavy gales, they fly extremely low, generally skimming along by the surface of the water. The Fulmar walks awkwardly, and with the legs so bent that the feet almost touch the belly. When on ice it rests with its body on the surface, and presents its breast to the wind. Like the Duck, it sometimes turns its head backward, and conceals its bill beneath its wing.

“ Fulmars are extremely greedy of the fat of the whale. Though few should be seen when a whale is about being captured, yet, as soon as the flensing process commences, they rush in from all quarters, and frequently accumulate to many thousands in number. They then occupy the greasy track of the ship ; and being audaciously greedy, fearlessly advance within a few yards of the men employed in cutting up the whale. If, indeed, the fragments of fat do not float sufficiently away, they approach so near the scene of operations, that they are knocked down with boat hooks in great numbers, and sometimes taken up by the hand. The sea immediately about the ship's stern, is sometimes so completely covered with them, that a stone can scarcely be thrown overboard, without striking one of them. When any thing is thus cast among them, those nearest the spot where it falls take the alarm, and these exciting some fear in others more remote, sometimes put a thousand of them in motion ; but as, in rising into the air, they assist their wings, for the first few yards, by striking the water with their feet, there is produced by such a number of them, a loud and most singular splashing. It is highly amusing to observe the voracity with which they seize the pieces of fat that fall in their way ; the size and quantity of the pieces they take at a meal ; the curious

chuckling noise which in their anxiety for dispatch they always make ; and the jealousy with which they view, and the boldness with which they attack, any of this species that are engaged in devouring the finest morsels. They frequently glut themselves so completely, that they are unable to fly ; in which case, when they are not relieved by a quantity being disgorged, they endeavour to get on the nearest piece of ice, where they rest until the advancement of digestion restores their wonted powers. Then, if opportunity admit, they return with the same gust to the banquet as before ; and though numbers of the species may be killed, and allowed to float about among them, they appear unconscious of danger to themselves.

“ The Fulmar never dives, but when incited to it by the appearance of a morsel of fat under water. When in close view of any men, it keeps a continual watch both on the men and its prey ; having its feet continually in motion, and yet perhaps not moving at all through the water. Its boldness increases with the numbers of its species that surround it. It is a very hardy bird. Its feathers being thick it is not easily killed with a blow. Its bite, from the crookedness, strength, and sharpness of its bill, is very severe.

“ When carrion is scarce, the Fulmars follow the living whale ; and sometimes, by their peculiar motions, when hovering at the surface of the water, point out to the fisher the position of the animal of which he is in pursuit. They cannot make much impression on the dead whale, until some more powerful animal tears away the skin ; the epidermis and rete mucosum they entirely remove, but the true skin is too tough for them to make way through it.”

PROCELLARIA GLACIALIS, Linn. Syst. Nat. vol. i. p. 213.—*Lath. Ind. Ornith.* vol. ii. p. 823.—*Ch. Bonaparte*, Synops. of Birds of the United States, p. 369.

FULMAR PETREL, *Nuttall*, Manual, vol. ii. p. 330.

Adult Male in Summer. Plate CCLXIV.

Bill shorter than the head, robust, straight, slightly compressed, the tip curved. Upper mandible with the nostrils on the ridge, separated only by a thin partition, covered by an elevated horny case, and opening directly forwards, the sides convex, and separated by a groove from the nasal plate, as well as from the unguis, which is remarkably strong,

curved and acute, the edges sharp, inflected, and slightly curved. Lower mandible with the angle long, rather wide, acute, the sides erect but convex, the edges sharp and inflected, the very short dorsal line ascending and slightly concave, the edges decurved at the end.

Head rather large, ovate. Neck rather short. Body full. Feet of moderate length, stout; tibia bare for a short space below; tarsus a little compressed, rather sharp before, covered all round with reticular scales, of which those on the anterior and posterior ridges are much smaller. Hind toe a slight prominence, with a conical obtuse claw; the fore toes long, slender, scutellate above, connected by striated entire webs, the fourth a little longer than the third, the second not much shorter. Claws rather small, arched, compressed, rather acute, that of third toe with an inner thin edge.

Plumage free, close, elastic, blended; on the back and wings the feathers rather distinct. Wings long; primary quills rather broad, tapering, acuminate, the first longest, the rest graduated; secondary broad and rounded. Tail rather short, slightly rounded, of twelve broad, rounded feathers.

Bill, iris, and feet yellow, the latter tinged with green. The head, neck and lower parts, are pure white; the back and wings light greyish-blue, the rump paler, the tail bluish-white; the primary quills and their coverts blackish-brown.

Length to end of tail $16\frac{1}{2}$ inches, to end of wings $17\frac{3}{4}$, to end of claws $11\frac{1}{4}$; extent of wings 30; wing from flexure 13; tail $4\frac{1}{4}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $2\frac{1}{2}$; tarsus 2; outer toe $1\frac{8}{12}$, its claw $\frac{1}{4}$. Weight 1 lb. 4 oz.

The Female is similar to the Male.

THE BUFF-BREASTED SANDPIPER.

TRINGA RUFESCENS, Vieill.

PLATE CCLXV. MALE AND FEMALE.

It is a curious fact that although this beautiful bird is by no means rare, at particular periods, along the shores of our Eastern Districts, it remained unknown to WILSON, BONAPARTE, and, until found in England by Mr YARRELL, to myself. It was first discovered by VIEILLOT in Louisiana, where, however, I never met with it. My friend NUTTALL, who has also described it, states that it is often seen near Boston, in company with the Pectoral Sandpiper, and is not uncommon in the market there. To my friend Mr YARRELL I am indebted for the use of his specimen, from which I made the figure in the act of starting on wing. The other figure was taken from an American specimen, procured at Boston, and now in my possession. I regret, however, that I can say nothing respecting the habits or haunts of this bird, farther than that having seen a wing of it in the possession of my friend Captain JAMES CLARK ROSS, I think it probable that it breeds near the Arctic circle, as he received a wing from the sailors, who had found it in the course of one of the numerous inland excursions in the desolate regions from which these intrepid navigators have recently returned.

TRINGA RUFESCENS, LE *TRINGA ROUSSATRE*, Vieill. Nouv. Dict. d'Hist. Nat.—

Yarrell, in Linn. Trans. vol. xvi. p. 109. pl. 11.

BUFF-BREASTED *TRINGA*, *TRINGA RUFESCENS*, Selby, Illustr. vol. ii. p. 142. pl. 27. fig. 4.

BUFF-BREASTED SANDPIPER, Nuttall, Manual, vol. ii. p. 113.

Adult Male. Plate CCLXV. Fig. 1.

Bill about the length of the head, slender, subcylindrical, very slightly decurved, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line very slightly decurved towards the end, the ridge convex, the sides sloping, the edges rather blunt and soft. Nasal groove extending to near the tip, nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line

straight, the sides sloping outwards, with a long narrow groove, the tip a little broader, but tapering.

Head of moderate size, oblong, compressed. Eyes rather large. Neck of moderate length. Body rather slender. Feet rather long, slender; tibia bare a third part of its length; tarsus compressed, anteriorly and posteriorly with numerous small scutella; hind toe very small; the rest of moderate length, slender, the fourth slightly longer than the second, the third longest; all free, scutellate above, flat beneath, slightly marginate; claws rather small, slightly arched, compressed, rather obtuse, that of the third toe much larger, with the inner edge dilated.

Plumage very soft, blended on the lower parts, the feathers rather distinct above. Wings very long, pointed; primaries tapering, obtuse, the first longest, the second almost equal, the rest rapidly graduated; outer secondaries slightly incurved, narrow, very obliquely sinuate on the outer web towards the end, the inner web rounded, and extending beyond the outer; inner secondaries very narrow, tapering, acute, reaching, when the wing is closed, to within half an inch of its tip. Tail of moderate length, nearly even, with the two middle feathers exceeding the rest, and having the shaft projecting, of twelve narrow, rounded feathers.

Bill dull olive-green, dusky towards the point. Iris hazel. Feet dull yellowish-green, claws dusky. The general colour of the upper parts is greyish-yellow, each feather blackish-brown in the centre; wing-coverts lighter; quills and their coverts light greyish-brown, greenish-black at the end, but with a whitish tip, the inner webs whitish in the greater part of their breadth, and beautifully dotted with black in undulating lines; the inner secondaries like the feathers of the back. The two middle tail-feathers greyish-brown, dark-brown glossed with green at the end, and slightly margined and tipped with white, the rest gradually paler to the outer, margined and tipped with white, within which are two lines of blackish-brown. Sides of the head, fore neck, and sides light yellowish-red, the throat paler, the sides of the neck and body spotted with brownish-black; the rest of the lower parts paler and unspotted. The lower wing-coverts are white, those near the edge of the wing black in the centre, the primary coverts dotted with black, and having a spot of the same near the end.

Length to end of tail 8 inches, to end of wings $8\frac{2}{3}$; extent of wings 18; wing from flexure $5\frac{3}{4}$; tail $2\frac{1}{4}$; bill along the ridge $1\frac{9}{16}$, along the edge of lower mandible 1; bare part of tibia $\frac{7}{8}$; tarsus $1\frac{4}{8}$, middle toe $1\frac{9}{16}$, its claw $\frac{9}{16}$. Weight $2\frac{1}{2}$ oz.

Adult Female. Plate CCLXV. Fig. 2.

The Female is somewhat larger than the male, which it resembles in colour, but has the lower parts paler, and the feathers of the upper parts of a lighter brown, with an inner margin of brownish-black and an outer of greyish-yellow.

THE OPOSSUM.

THIS singular animal is found more or less abundant in most parts of the Southern, Western, and Middle States of the Union. It is the *Didelphis virginiana* of PENNANT, HARLAN, and other authors who have given some account of its habits; but as none of them, so far as I know, have illustrated its propensity to dissimulate, and as I have had opportunities of observing its manners, I trust that a few particulars of its biography will prove amusing.

The opossum is fond of secluding itself during the day, although it by no means confines its predatory rangings to the night. Like many other quadrupeds which feed principally on flesh, it is also both frugivorous and herbivorous, and, when very hard pressed by hunger, it seizes various kinds of insects and reptiles. Its gait, while travelling, and at a time when it supposes itself unobserved, is altogether ambling: in other words, it, like a young foal, moves the two legs of one side forward at once. The Newfoundland dog manifests a similar propensity. Having a constitution as hardy as that of the most northern animals, it stands the coldest weather, and does not hybernate, although its covering of fur and hair may be said to be comparatively scanty even during winter. The defect, however, seems to be compensated by a skin of considerable thickness, and a general subcutaneous layer of fat. Its movements are usually rather slow, and as it walks or ambles along, its curious prehensile tail is carried just above the ground, its rounded ears are directed forward, and at almost every step its pointed nose is applied to the objects beneath it in order to discover what sort of creatures may have crossed its path. Methinks I see one at this moment slowly and cautiously trudging over the melting snows by the side of an unfrequented pond, nosing as it goes for the fare its ravenous appetite prefers. Now it has come upon the fresh track of a grouse or hare, and it raises its snout and snuffs the keen air. At length it has decided on its course, and it speeds onward at the rate of a man's ordinary walk. It stops and seems at a loss in what direction to go, for the object of its pursuit has either taken a considerable leap, or has cut backwards before the opossum entered its track. It raises itself up, stands for a while on its hind feet, looks around, snuffs the air again, and then proceeds; but now, at the foot of a noble tree, it comes to a full

stand. It walks round the base of the huge trunk, over the snow-covered roots, and among them finds an aperture, which it at once enters. Several minutes elapse, when it re-appears, dragging along a squirrel already deprived of life, with which in its mouth it begins to ascend the tree. Slowly it climbs. The first fork does not seem to suit it, for perhaps it thinks it might there be too openly exposed to the view of some wily foe, and so it proceeds, until it gains a cluster of branches intertwined with grape-vines, and there composing itself, it twists its tail round one of the twigs, and with its sharp teeth demolishes the unlucky squirrel, which it holds all the while with its fore paws.

The pleasant days of spring have arrived, and the trees vigorously shoot forth their buds ; but the opossum is almost bare, and seems nearly exhausted by hunger. It visits the margins of creeks, and is pleased to see the young frogs, which afford it a tolerable repast. Gradually the poke-berry and the nettle shoot up, and on their tender and juicy stems it gladly feeds. The matin calls of the Wild Turkey Cock delight the ear of the cunning creature, for it well knows that it will soon hear the female, and trace her to her nest, when it will suck the eggs with delight. Travelling through the woods, perhaps on the ground, perhaps aloft, from tree to tree, it hears a cock crow, and its heart swells as it remembers the savoury food on which it regaled itself last summer in the neighbouring farm-yard. With great care, however, it advances, and at last conceals itself in the very hen-house.

Honest farmer ! why did you kill so many crows last winter ? ay, and ravens too ? Well, you have had your own way of it ; but now hie to the village and procure a store of ammunition, clean your rusty gun, set your traps, and teach your lazy curs to watch the opossum. There it comes ! The sun is scarcely down, but the appetite of the prowler is keen ; hear the screams of one of your best chickens that has been seized by him ! The cunning beast is off with it, and nothing now can be done, unless you stand there to watch the fox or the owl, now exulting in the thought that you have killed their enemy and your own friend, the poor crow. That precious hen under which you last week placed a dozen eggs or so, is now deprived of them. The opossum, notwithstanding her angry outcries and rufflings of feathers, has removed them one by one ; and now, look at the poor bird as she moves across your yard ; if not mad, she is at least stupid, for she scratches here and there, calling to her chickens all the while. All this comes from your shooting crows. Had you been

more merciful or more prudent, the opossum might have been kept within the woods, where it would have been satisfied with a squirrel, a young hare, the eggs of a Turkey, or the grapes that so profusely adorn the boughs of our forest trees. But I talk to you in vain.

There cannot be a better exemplification of maternal tenderness than the female opossum. Just peep into that curious sack in which the young are concealed, each attached to a teat. The kind mother not only nourishes them with care, but preserves them from their enemies ; she moves with them as the shark does with its progeny, and now, aloft on the tulip tree, she hides among the thick foliage. By the end of two months they begin to shift for themselves ; each has been taught its particular lesson, and must now practise it.

But suppose the farmer has surprised an Opossum in the act of killing one of his best fowls. His angry feelings urge him to kick the poor beast, which, conscious of its inability to resist, rolls off like a ball. The more the farmer rages, the more reluctant is the animal to manifest resentment ; at last there it lies, not dead, but exhausted, its jaws open, its tongue extended, its eye dimmed ; and there it would lie until the bottle-fly should come to deposit its eggs, did not its tormentor at length walk off. " Surely," says he to himself, " the beast must be dead." But no, reader, it is only " 'possuming," and no sooner has its enemy withdrawn, than it gradually gets on its legs, and once more makes for the woods.

Once, while descending the Mississippi, in a sluggish flat-bottomed boat, expressly for the purpose of studying those objects of nature more nearly connected with my favourite pursuits, I chanced to meet with two well-grown Opossums, and brought them alive to the " ark." The poor things were placed on the roof or deck, and were immediately assailed by the crew, when, following their natural instinct, they lay as if quite dead. An experiment was suggested, and both were thrown overboard. On striking the water, and for a few moments after, neither evinced the least disposition to move ; but finding their situation desperate, they began to swim towards our uncouth rudder, which was formed of a long slender tree, extending from the middle of the boat thirty feet beyond its stern. They both got upon it, were taken up, and afterwards let loose in their native woods.

In the year 1829, I was in a portion of Lower Louisiana, where the Opossum abounds at all seasons, and having been asked by the President and the Secretary of the Zoological Society of London, to forward live

animals of this species to them, I offered a price a little above the common, and soon found myself plentifully supplied, twenty-five having been brought to me. I found them excessively voracious, and not less cowardly. They were put into a large box, with a great quantity of food, and conveyed to a steamer bound for New Orleans. Two days afterwards, I went to the city, to see about sending them off to Europe; but, to my surprise, I found that the old males had destroyed the younger ones, and eaten off their heads, and that only sixteen remained alive. A separate box was purchased for each, and some time after they reached my friends the RATHBONES of Liverpool, who, with their usual attention, sent them off to London, where, on my return, I saw a good number of them in the Zoological Gardens.

This animal is fond of grapes, of which a species now bears its name. Persimons are greedily eaten by it, and in severe weather I have observed it eating lichens. Fowls of every kind, and quadrupeds less powerful than itself, are also its habitual prey.

The flesh of the Opossum resembles that of a young pig, and would perhaps be as highly prized, were it not for the prejudice generally entertained against it. Some "very particular" persons, to my knowledge, have pronounced it excellent eating. After cleaning its body, suspend it for a whole week in the frosty air, for it is not eaten in summer; then place it on a heap of hot wood embers; sprinkle it when cooked with gunpowder; and now tell me, good reader, does it not equal the famed Canvas-back Duck? Should you visit any of our markets, you may see it there in company with the best game.

THE COMMON CORMORANT.

PHALACROCORAX CARBO, DUMONT. .

PLATE CCLXVI. MALE, FEMALE, AND YOUNG.

Look at the birds before you, and mark the affectionate glance of the mother, as she stands beside her beloved younglings ! I wish you could have witnessed the actions of such groups as I did while in Labrador. Methinks I still see the high rolling billows of the St Lawrence breaking in foaming masses against the huge cliffs, on the shelves of which the Cormorant places its nest. I lie flat on the edge of the precipice some hundred feet above the turbulent waters, and now crawling along with all care, I find myself only a few yards above the spot on which the parent bird and her young are fondling each other, quite unconscious of my being near. How delighted I am to witness their affectionate gratulations, hear their lisping notes, mark the tremulous motions of their expanded throats, and the curious vacillations of their heads and necks ! The kind mother gently caresses each alternately with her bill : the little ones draw nearer to her, and, as if anxious to evince their gratitude, rub their heads against hers. How pleasing all this is to me ! But at this moment the mother accidentally looks upward, her keen eye has met mine, she utters a croak, spreads her sable wings, and in terror launches into the air, leaving her brood at my mercy. Far and near, above and beneath me, the anxious parent passes and repasses ; her flight is now unnatural, and she seems crippled, for she would fain perform those actions in the air, which other birds perform on the ground or on the water, in such distressing moments of anxiety for the fate of their beloved young. Her many neighbours, all as suspicious as herself, well understand the meaning of her mode of flight, and one after another take to wing, so that the air is in a manner blackened with them. Some fly far over the waters, others glide along the face of the bold rock, but none that have observed me realight, and how many of those there are I am pretty certain, as the greater number follow in the track of the one most concerned. Meanwhile the little ones, in their great alarm, have crawled into a recess, and there they are huddled together. I have witnessed their pleasures and

their terrors, and now, crawling backwards, I leave them to resume their ordinary state of peaceful security.

It was on the 3d of July 1833, about three in the morning, that I had the pleasure of witnessing the scene described above. I was aware before that a colony of Cormorants had nestled on the ledges of the great rocky wall that separated our harbour of Whapatiguan from the waters of the Gulf of St Lawrence. A strong gale had ruffled the sea, and the waves dashed with extreme violence against the rocks, to which circumstance, I believe, was owing my having remained a while unseen and unheard so near the birds, which were not more than four or five yards below me. The mother fondled and nursed her young with all possible tenderness, disgorged some food into the mouth of each, and coaxed them with her bill and wings. The little ones seemed very happy, billed with their mother, and caressed her about the breast. When the parent bird flew off on observing me, the young seemed quite frightened, squatted at once on their broad nest, and then crawled with the aid of their bills until they reached a recess where they remained concealed.

On another occasion, my young friends LINCOLN and COOLEGE, along with my son, went to the same rocks, for the purpose of bringing me a nest and some of the young Cormorants. They reported that, in one instance, they surprised the parent birds close beneath them, apparently asleep, resting on their rumps in an upright position, with the head thrust under the wing, and that, had they had a noose attached to their poles, they might have secured at least one of them, but that after a few minutes one drew out her head, stretched her neck, and after looking around flew off croaking, so as to alarm all her neighbours.

We saw no nests of this species placed in any other situations than the highest shelves of the precipitous rocks fronting the water and having a southern exposure. No other Cormorants bred on the spots of which this kind had taken possession; but Ravens and Peregrine Falcons were observed to have nests on the same rocks, and in some instances close to them. The nests were formed of a quantity of small dry sticks, matted in a rude manner with a large quantity of weeds and moss, to a thickness of four or five inches in new nests, and in others to that of a foot or more; for we observed that this species, as well as the Double-crested and the Florida Cormorants, repair and enlarge their tenements each season, and return to the same rocks many years in succession, as was shewn by their places of resort remaining whitewashed with excrements through the win-

ter, in which condition we saw them previous to the arrival of the birds that season. The nests varied in breadth according to the space on which they were placed; where there was ample room, they measured at the base from thirty to thirty-six inches in diameter; others were scarcely large enough to hold the young, which nevertheless seemed as contented as their neighbours. On some shelves, eight or ten yards in extent, the nests were crowded together; but more usually they were placed apart on every secure place without any order; none, however, were below a certain height on the rocks, nor were there any on the summit. The nests being covered with filth, were offensive to the eye, and still more so to the nose. The eggs, three or four in number, more frequently the former, average two inches and five-eighths in length, by one inch and three quarters in breadth, the shell of a uniform pale bluish-green colour, mostly coated over with calcareous matter.

The young are at first of a dark purplish livid colour, and have a very uncouth appearance, their legs and feet seeming enormous. In less than a fortnight they become covered on all the upper parts with brownish-black down, but the abdomen remains bare much longer than the rest. They increase rapidly in size, and are fledged in six or seven weeks. Some that were weighed when about a month old, averaged three pounds, and others almost able to fly six pounds, the young of this species, as of most water birds, being much heavier than the parent at the time of leaving the nest. We procured several of different sizes, which we kept on the deck. Whenever a person approached them, they raised their heads, stretched their necks, and opened their bills, so as to expand the skin of the throat, which they made to vibrate, while they uttered a sort of hissing mutter of a very strange character, but resembling that of the young of the Brown Pelican. They crawled sluggishly about, aiding themselves in their progress with their bills, and at all times looked extremely clumsy. They took food very readily, ate a prodigious quantity, certainly more than their own weight each day, and appeared always ready to receive more. When thrown overboard, they swam off under water, like the old birds, with considerable speed, moving their unfledged wings all the while. Some would not rise for twenty or thirty yards, but few went farther under water than that distance, and they were soon fatigued. On one occasion, some half-grown young birds threw themselves from their nest, or were pushed off by their parents while in the agonies of death, they having been shot at. As they

passed quickly downwards through the air, they moved their wings with great rapidity, and the instant they reached the water they disappeared beneath the surface.

This Cormorant swims at times with astonishing speed, keeping itself deeply immersed. Now and then, should it apprehend danger, it sinks so far as to shew only the head and neck, in the manner of the Anhinga. When searching for food in clear shallow water, they frequently swim with the rump rather elevated, and the head under, in the manner of the Shoveller Duck on such occasions, as if they were looking for prey on the bottom; but I never observed them act thus when the depth of water exceeded a few yards. They secure their prey by diving and pursuing it under water, with the wings partially extended and employed as paddles, while the tail directs their course, and checks or accelerates their speed. I have observed this in the Florida Cormorant, as well as in the present species. I never saw one while flying plunge after its prey; but I have repeatedly seen them drop from a rock headlong into the sea when shot at for the purpose of observing their actions.

Cormorants, Pelicans, Ducks, and other water birds of various kinds, are, like land birds, at times infested with insects which lodge near the roots of their feathers; and to clear themselves of this vermin, they beat up the water about them by flapping their wings, their feathers being all the while ruffled up, and rub or scratch themselves with their feet and claws, much in the same manner as Turkeys and most land birds act, when scattering up the dry warm earth or sand over them. The water birds after thus cleansing themselves remove, if perchers, and able to fly, to the branches of trees, spread out their wings and tail in the sun, and after a while dress their plumage. Those which are not perchers, or whose wings are too wet, swim to the shores, or to such banks or rocks as are above water, and there perform the same process. The Florida Cormorant is especially addicted to this practice, and dives and plumes itself several times in the day. The Double-crested and the present species, which inhabit colder regions, seem to be satisfied with less frequent trimming, and go through the operation only once a-day, at the warmest period. I never observed any of these birds in their natural free state perform these actions in rainy or even cloudy weather, but have frequently seen Cormorants in a state of captivity do so on small artificial ponds, such as those of the London Zoological Gardens.

When they have landed after cleansing themselves by washing, they usually extend their wings, and flap them for a while, in the manner of young birds of any kind when trying the strength of their wings before leaving the nest. They are extremely regular in returning to the same places to roost, at the approach of night, when hundreds appear to congregate on their way there, as they pass over the different fishing grounds. Those that have no broods, spend the night apart from the rest, standing nearly erect in files on the most elevated shelves, to which they ascend in the manner of some Hawks, when about to perch on any elevated spot. In winter, however, I observed some near Boston roosting singly, and immediately over their fishing places, which are usually the eddies under the projecting points of rocky islands. They are shy and wary at all periods; but when congregated in the day, it is almost impossible to approach them while fishing, for they dive and return to the surface one after another, so that one or more are constantly on the watch, and act as sentinels. It is in general quite useless to pursue one that has been wounded.

The flight of this species is strong, swift, and remarkably sustained. They usually fly in long strings, now and then forming angles, at a moderate elevation in the air. When on the rocks, they stand erect on their rump, with the neck gracefully curved, and resting between the shoulders. You may see them in hundreds, when they look like a crowd of black dominoes. If alarmed, they extend their neck to its full length, and move their head sideways to observe your motions; and if you approach them, they gradually raise and extend their wings, elevate the tail, incline the body forwards, and fly off in silence.

All our Cormorants feed principally on fish of various kinds. When they have seized one that is too large to be swallowed entire, they carry it to the shore, or to the branch of a tree, and there thrash and tear it to pieces. Some fishes which they have swallowed evidently incommode them, and on such occasions I have sometimes seen them shake their heads with great violence, and disgorge the fish, or pass it downwards into the stomach. The young ones which we kept several weeks at Labrador, performed both actions, but generally the first. All the species are expert at tossing up a fish inconveniently caught, a foot or so above their head, and receiving it in their extended gullet, in the same manner as the Frigate Pelican, of which an account will be given in the present volume. Some which I have observed in a domesticated state, were so expert at receiving a fish thrown to them from the distance of several yards,

by a sudden and precise movement of the neck and head, as seldom to miss one in a dozen.

The courtship of this species is so similar to that of the Florida Cormorant, that I consider it unnecessary to describe it, as I should merely repeat what has been said with respect to that species. I have seen them act in the same manner, both on the shelves on which the nests were placed, and on the water. They begin to lay about the first of June, on the islands near the Bay of Fundy, about a fortnight later in Labrador; and it is my opinion that the younger birds spend their breeding season in the former places.

The Common Cormorant walks in a waddling and awkward manner, but at a good pace, and leaps from one stone to another, assisting itself with its wings, and occasionally with the tail, which acts as a kind of spring. I am unable to say at what age this species attains the full dress of the love season, but it cannot be in less than three years, as some which I have known to have been kept in a state of constant captivity, did not shew the white patch on the thigh, nor the slender white feathers around the head and part of the neck, until the middle of May, in the fifth year. That the younger birds of this and other Cormorants, breed before they have acquired the full beauty of their plumage, is a fact which I have had many opportunities of ascertaining. The Common Cormorant is found breeding, both near the entrance of the Bay of Fundy, and along the coast of Labrador, in flocks of fifty or more pairs, of which not an individual shews any white unless on the sides of the head, and along the throat, but much duller on these parts than even in the female represented in the plate, which was yet what may be termed an immature bird. No differences appear in the garb of the sexes, in their different states of plumage, and perfect specimens of both are equally beautiful in the breeding season, being then similar to the male of which I have endeavoured to present a good portrait. I have observed a greater difference in size between individuals of this species, than those of any other.

The white markings observed on the old birds of this species, during the period of courtship, incubation, and rearing of the young until they are able to fly, and which extends to two months and a half, begin to disappear from the moment incubation has fairly begun, and at the time when the young leave the nest scarcely any remain, unless on the sides of the head. In autumn and winter the feathers of the head are similar to those of the neck, and the plumage in general has lost much of its ver-

nal and æstival beauty. The entire crest also falls off in autumn. The white markings and the crest are renewed in the wild state about the end of February; but in birds kept in domestication rarely before May. The young do not exhibit the crest until the second spring, at which period, being yet destitute of white markings on the head and thighs, they might readily be mistaken for a different species, by a person unacquainted with their habits.

The singular fact that the young of the three species of Cormorant described in this volume, have *open nostrils* until they are nearly half-grown, may surprise you as much as it surprised me. Having observed it in many individuals, I preserved one in spirits, and of it you will find a description beneath.

The Common Cormorant is rarely seen farther south than the extreme limits of Maryland; but from Chesapeake Bay eastward, it becomes more plentiful; and in severe winters, I have seen it exposed for sale in the New York market. They are abundant in winter around the islands of the Bay of Boston, and on the coasts of Massachusetts and Maine, where most of them remain during autumn, winter, and the early part of spring, as well as on the Bay of Fundy and along the shores of Nova Scotia. I am unable to say how far north they go beyond Labrador, to breed, or what may be the limits of their range on the St Lawrence in autumn. I have never seen one on a tree, or on fresh water. The flesh of this species is dark, tough, and fishy, its eggs also do not furnish agreeable food, and it is seldom that either are eaten, even by epicures.

PELECANUS CARBO, *Linn. Syst. Nat.* vol. i. p. 216.—*Lath. Ind. Ornith.* vol. ii. p. 886.

PHALACROCORAX CARBO, *Ch. Bonaparte*, *Synopsis of Birds of the United States*, p. 402.

CORMORANT, *Nuttall*, *Manual*, vol. ii. p. 479.

Adult Male in March. Plate CCLXVI. Fig. 1.

Bill about the length of the head, rather slender, somewhat compressed, straight, with the tip curved. Upper mandible with the dorsal line sloping and slightly concave, at the tip decurved, its ridge broad and rounded, and separated from the sides by a narrow groove, the sides erect, irregularly scaly, convex, the edges sharp and straight as far as the unguis, at the base a distinct horny plate, the unguis strong, convex above, incurved, acute. No external nostrils when full-grown. Lower mandible with the angle long and very narrow towards the end, filled by an exten-

sible membrane, which extends a short way down the throat, its short dorsal line a little convex, then concave, the sides scaly, erect, and slightly convex, the edges sharp and inflected, the tip compressed and obliquely truncate.

* Head rather large, oblong, narrowed before. Neck long and stout. Body rather full, depressed. Feet short, stout, placed far behind; tibia feathered in its whole length; tarsus very short, strong, much compressed, covered all round with scales, of which the outer are subhexagonal. the inner transversely elongated, the posterior very small and roundish. Toes all placed in the same plane, and connected by reticulated webs, covered above with very numerous oblique scutella; first toe smallest, fourth longest. Claws strong, curved, compressed, acute, that of the third toe pectinated on its inner edge.

Plumage of the head, neck, lower parts, and posterior portion of the back, glossy, blended, and silky; of the fore part of the back and wings compact, the feathers with loose glossy margins. The middle feathers of the occiput and hind neck are elongated, and those of the head and upper neck are intermixed with numerous linear feathers of a different colour, and erectile at will. Space around the eye, and to a large extent along the base of the bill, together with the small gular sac, bare. Wings rather small; primaries very strong, curved, rather narrow, tapering and obtuse, third longest, second almost as long, first little shorter; secondaries decurved, broad, broadly rounded, the inner broad and shorter. Tail small, much rounded, of fourteen narrow, rounded feathers, having extremely long shafts.

Upper mandible greyish-black, along the edges yellowish-white; lower yellowish-white at the base, dusky towards the end. Iris light bluish-green, margins of eyelids dusky. Bare space about the eye dull olive, below it bright red, the gular sac yellow. Feet and claws greyish-black. All the silky part of the plumage is black, glossed with deep greenish-blue; at the base of the gular sac is a broad gorget of white, and the linear interspersed feathers over the head and upper neck are white, there is also a large parcel of elongated white feathers on the side over the thigh. The feathers of the wings and part of the back are dull bluish-grey glossed with bronze, their fringe-like margins greenish-black. Primary quills greyish-black, secondary like the other feathers of the wing. Tail greyish-black. The shafts of all the feathers are black at the end, leaden-grey towards the base.

Length to end of tail 37 inches, to end of claws 36; to end of wings

32; extent of wings 62; wing from flexure 14; tail $6\frac{1}{2}$; bill along the ridge $3\frac{4}{8}$, along the edge of lower mandible $4\frac{2}{8}$; tarsus $2\frac{1}{4}$; outer toe $3\frac{7}{8}$, its claw $1\frac{1}{8}$. Weight $7\frac{1}{2}$ lb.

Female in July. Plate CCLXVI. Fig. 2.

The Female when old is similar to the male. In the state here represented, the plumage in general is similar, but the white feathers of the head and thighs are wanting. The bill, eyes and feet are coloured as in the male, as are the bare parts about the base of the bill, only the part under the eye which is bright red in the male, is bright yellow in the female.

Young Birds unfledged. Plate CCLXVI. Fig. 3, 4.

The inside of the mouth and the gular sac flesh-coloured; the bill dusky, at the base flesh-coloured; the eyes bluish grey. The general colour of their skin is dull livid; the feet purplish-dusky, the webs yellowish-brown.

The following is a description of the smaller individual represented in the plate, and which was about two weeks old. The length is twelve inches and a half; the colour dull livid, the abdomen and breast lighter, the forehead, gular sac, and bases of the mandibles, flesh-colour tinged with yellow, as is the mouth. The head and upper part of the neck are bare, as well as the lower surface of the wings. Over the rest of the body are small down tufts rising in regular series, excepting along an impressed line extending from the anterior part of the thorax to the anus. The apertures of the ears are round, extremely small, being only half a twelfth in diameter; the eyes very small, the iris grey. The aperture of the posterior nares is linear-lanceolate, smooth on the edges, half an inch long. A probe introduced into it passes readily out by the nostril, which is basal, linear, small, two-twelfths long, placed at the commencement of the long groove which separates the sides from the ridge of the mandible, and covered above by the skin, so as to be not readily observed, although it is easily dilatable. Each internal nostril is oblique, much wider below, and has on its inner side a transverse soft ridge, which divides it into two cavities, the posterior deep and funnel-shaped, passing backwards and upwards, the anterior becoming narrower towards the external aperture. The tongue is extremely small, four-twelfths long, elliptical, with a cen-

tral ridge. The œsophagus is extremely dilatable, and as far as the middle of the neck is of larger diameter than below, but it again dilates as it enters the stomach. Its length is five inches and a half. The inner coat is smooth in its dilated part, but in the rest is raised into numerous longitudinal ridges or folds, which at the lower part are undulated. The stomach is oblong, four and a half inches long, quite membranous, and without apparent central tendons. The gastric glands are disposed so as to occupy two spaces, the one three and a half inches by two, the other a little smaller. The inner coat is soft and without wrinkles. The intestine is five feet two inches long, at its upper part three-twelfths in diameter, gradually diminishing to one-twelfth. At the distance of two inches from the anus are two cæca, three-twelfths long, one-twelfth in diameter, and rounded. The contents of the stomach were fragments of fish, with numerous bones, and a pebble about half an inch in diameter. The heart triangular, much flattened. The liver of two very unequal lobes, the right one two inches and a half long, the other one and a half. The specimen, which I had preserved in spirits, was examined in my presence by my friend Mr MACGILLIVRAY. Whether the fact of the anterior aperture of the organ of smell being open in the young Cormorant has been observed by any other person than myself, I know not; but it would seem that the general opinion is, that Cormorants have no external nares in any stage, and although some state that in the adult they exist, and are extremely small, others allege that there are none at all.

A young female, shot in the end of October, on being carefully examined, was found to present the following characters.

The length to the end of the tail was 36 inches, to the end of the wings $29\frac{3}{4}$, to the end of the outer toe $34\frac{1}{4}$; the extent of the wings 55; the weight 5 lb. $10\frac{1}{2}$ oz.

Bill along the ridge and unguis black, the sides brownish-grey; the lower mandible brownish-grey, dusky on the sides at the middle, the bare skin at the base yellow, as is the gular sac. Upper part of the head and hind neck brownish-black; the back greenish-black, its fore part, the scapulars and the wing-coverts brownish-grey, the feathers edged with greenish-black, and an outer margin of brownish-white, most conspicuous on the secondary coverts; the quills brownish-black, the secondaries tinged with grey on the outer edge; the tail greyish-black, the shafts greyish-blue. Upper part of the throat brownish-white; the rest of the neck greyish-white, mixed with brown; the breast and abdomen white, the

sides greenish-black ; the lower surface of the wings dusky ; the lower tail-coverts greyish-brown, the feathers before them brownish-black. The feet greyish-black ; the inner edge of the middle claws very slightly pectinated. The foot, when stretched to its full extent, measures, from the tip of the first to that of the fourth claw, $5\frac{1}{2}$ inches.

The tongue is oblong, carinate above, $1\frac{1}{2}$ long, $\frac{1}{2}$ broad. The palatal slit or aperture of the posterior nares is linear, $1\frac{1}{2}$ long, with a soft flap on each side. The mouth is $1\frac{1}{2}$ wide ; the bill $3\frac{1}{4}$ along the back, 4 along the edge of lower mandible. The aperture of the ear is circular, only half a line in diameter.

On blowing into the posterior nares no air passes. The internal cavities are separated by a longitudinal membranous dissepiment ; each cavity is transversely divided by a membranous partition, but neither of the chambers thus formed has any external communication by the mandible. The lachrymal duct, which is wide, passes obliquely forward and downward into the anterior cavity. On gradually slicing the horny covering of the mandible over the place where the nostril ought to be, its position is found clearly defined, there being a slight discontinuity of the bone at that part ; but on cutting farther all traces disappear, the original aperture being closed by ossification.

The aperture of the glottis has thick prominent rounded edges, which unite behind and terminate in three knobs, and there is a small transverse flap on each side behind.

The heart is triangular, depressed, obtuse, $2\frac{1}{2}$ inches long, its greatest breadth $1\frac{1}{2}$. The liver has two very unequal lobes, the right 5 inches, the left 3 inches long ; the former $2\frac{1}{2}$ broad, the latter $1\frac{1}{4}$. The gall-bladder is $2\frac{1}{4}$ long, $\frac{3}{4}$ in diameter, rounded, but not much enlarged at the extremity.

The œsophagus is $22\frac{1}{2}$ inches long ; at its upper part when dilated upwards of two inches wide, extremely thin, its circular fibres distinct. It is contracted in the whole length of the thorax, where its smallest diameter is $\frac{8}{12}$, the largest $\frac{1}{2}$; but this part, which in the ordinary state has its inner coat folded into numerous longitudinal wrinkles, is capable of being dilated so as to present a diameter of more than 3 inches, when the internal rugæ disappears. The proventriculus seems at first to form part of the stomach ; its walls are extremely thick and studded with glandules, disposed in two circular patches, which are separated by a space of about $\frac{5}{8}$ of an inch. The stomach properly so called is very small ; its mus-

cular coat thin, but with two distinct tendons. It is of an oblong form, compressed, and at its upper parts has a rounded lobe, from which the intestine comes off. The inner coat is thick, soft, and rugous. The pylorus has a circular marginal rim. The intestine, which is 8 feet long, is at its upper part $\frac{5}{1}\frac{1}{2}$ in diameter, towards the cæca $\frac{2}{1}\frac{1}{2}$. The rectum is 7 inches long, its diameter for $4\frac{1}{2}$ inches is $\frac{7}{1}$; the cloaca globular, $2\frac{2}{1}$ in diameter; the cæca $\frac{3}{1}\frac{1}{2}$ long. The cystic duct enters one inch below the hepatic; between them enters one of the pancreatic ducts, the other 2 inches farther up. The distance from the pylorus to the hepatic duct is $16\frac{1}{2}$ inches.

The lungs extend to the kidneys. The ovules exceedingly small and numerous. In the proventriculus and lower part of the œsophagus were many small ascarides. The contents of the stomach were a few bones of fishes.

Although I have not actually observed that Cormorants have the power of disgorging such substances as they are unable to digest, I should not be surprised to find this to be the case, when their habits are investigated in a state of domestication.

THE ARCTIC JAGER.

LESTRIS PARASITICUS, BOIE.

PLATE CCLXVII. MALE AND FEMALE.

DURING winter this indefatigable teaser of the smaller Gulls often ranges along our southern coasts as far as the Mexican Gulf, where I have seen it, as well as opposite the shores of the Floridas; but I never met with a single individual in summer, even in the most northern parts, although I had expected to find it breeding on the coasts of Labrador and Newfoundland. Few birds surpass it in power or length of flight. It generally passes through the air at a height of fifty or sixty yards, flying in an easy manner, ranging over the broad bays, on which Gulls of various kinds are engaged in procuring their food. No sooner has it observed that one of them has secured a fish, than it immediately flies toward it and gives chase. It is almost impossible for the Gull to escape, for the warrior with repeated jerkings of his firm pinions sweeps towards it, with the rapidity of a Peregrine Falcon pouncing on a Duck. Each cut and turn of the Gull only irritates him the more and whets his keen appetite, until by two or three sudden dashes, he forces it to disgorge the food it had so lately swallowed. This done, the poor Gull may go in search of more; the *Lestris* is now for a while contented, and alights on the water to feed at leisure. But soon, perceiving a distant flock of Gulls, he rises on wing and speeds towards them. Renewing his attacks, he now obtains an abundant supply, and at length, when quite gorged, searches for a place on which to alight, unseen by any other of his tribe more powerful than himself. When on wing, its beautiful long tail-feathers seem at times to afford this bird great assistance in executing short sudden turns, which have often brought to my mind the motions of a greyhound while pursuing a hare. By sudden lashings of its tail, it can instantly turn, or arrest its flight. When it is on the water, it keeps that part upright, but when on a rock or a floating piece of timber, it allows it to fall in a graceful manner.

Although usually seen single, or at most in pairs, during the winter, I observed this species in April, on my voyage to the Florida Keys, in flocks of from ten to fifteen, congregated as if for the purpose of return-

ing to the northern regions, where it is said to breed in groups. Mr SELBY, in treating of this bird, says "It breeds upon several of the Orkney and Shetland Isles, and is gregarious during that period; and the situations selected for nidification are the unfrequented heaths at some distance from the shores. The nest is composed of dry grass and mosses, and its two eggs are of a dark oil-green, with irregular blotches of liver-brown. At this season the bird is very courageous, and, like the Common Skua, attacks every intruder upon the limits of its territory, by pouncing and striking at the head with its bill and wings. It also occasionally endeavours to divert attention by feigning accidental lameness." Having received eggs of this bird from individuals who had collected them, I may add that they are broadly rounded at the larger end, rather pointed at the smaller, have a smooth shell, and average two inches four-twelfths in length, by one inch and four and a half eighths in breadth.

M. TEMMINCK, in his *Manuel d'Ornithologie*, describes the young when about to leave the nest as follows: "Top of the head of a deep grey; sides and upper part of the neck of a light grey, sprinkled with longitudinal brown spots; a black spot before the eyes; lower part of the neck, back, scapulars, small and large wing-coverts, umber-brown, each feather bordered with yellowish-brown, and often with reddish; lower parts irregularly variegated with deep brown and yellowish-brown on a whitish ground; tail-coverts and abdomen transversely barred; quills of the wings and tail blackish, white at their base and on the inner barbs, all terminated with white; the two outer shafts white; tail only rounded; base of the bill yellowish-green, black towards the point; tarsi bluish-grey; base of the toes and membranes white, the rest black, hind claw often white."

In middle age, he says, "all the upper parts are greyish-brown without spots; lower parts of a somewhat lighter tint, and also unspotted; inner base of the quills and only the upper parts of the tail-feathers pure white, the rest blackish-brown; the two elongated tail-feathers gradually diminish in breadth towards the extremity, which ends in a very attenuated point; bill and feet as in the old individuals."

Captain JAMES CLARK ROSS has informed me by letter, that this species was seen in great numbers during his late voyage towards the Arctic circle; that the Pomarine Lestris was less abundant, and RICHARDSON'S very rare.

LESTRIS BUFFONII, *Ch. Bonaparte*, Synopsis of Birds of the United States, p. 364.

LESTRIS PARASITICA, ARCTIC JAGER, *Suome. and Richards*. Fauna Bor. Amer. part ii. p. 430.

ARCTIC JAGER, *Nuttall*, Manual, vol. ii. p. 317.

Adult Male. Plate CCLXVII. Fig. 1.

Bill about the length of the head, rather slender, straight, the tip curved. Upper mandible with the dorsal line straight, toward the end curved, the ridge broad and convex, the sides separated from the ridge by a narrow groove, extremely narrow and convex, the edges sharp and inflected, the tip compressed, rather obtuse. Nostrils in the fore part of the nasal groove, nearer the tip than the base, submarginal, pervious, linear, oblong, wider anteriorly. Lower mandible with the angle long and narrow, a slight prominence at its extremity, beyond which the dorsal line is straight and ascending, the sides sloping outwards and convex, the edges sharp and inflected, the tip obliquely truncate and rather obtuse.

Head rather small, oblong, much narrowed before. Neck of moderate length. Body rather slender. Feet rather short and of moderate strength ; tibia bare at its lower part ; tarsus anteriorly covered with broad decurved scutella, on the sides with oblong scales, behind with smaller oblong prominent scales ; hind toe extremely small and elevated, the fore toes of moderate size, connected by reticulated webs, which have their margins convex ; the third toe longest, the fourth not much shorter, all covered above with numerous scutella, the lateral ones margined externally with small prominent scales directed forwards. Claws of moderate size, curved, acute, compressed, that of third toe with a sharp inner edge.

The plumage in general is close, elastic, soft, and blended ; the feathers on the back and wings rather compact and distinct. Wings very long, rather broad, pointed ; primary quills tapering and rounded, the first longest, the rest rapidly graduated ; secondary rather short, rounded. Tail feathers of moderate length excepting the two middle, which are extremely elongated and gradually attenuated, the rest broad and rounded, there being twelve in all.

Bill greyish-black, the upper part bluish. Iris brown. Feet black, but with the greater part of the tarsus yellow. The neck and lower parts are white, the former tinged with yellow ; upper and fore part of head

with the space before the cheeks blackish-brown ; the lower part of the hind neck and all the upper parts blackish-grey, the primary quills and tail-feathers brownish-black, the shafts of the former white.

Length to end of tail 23 inches, to end of wings 15 ; extent of wings 45 ; wing from flexure 12 ; tail 12 ; bill along the back $1\frac{1}{4}$, along the edge of lower mandible $1\frac{3}{4}$; tarsus $1\frac{7}{8}$; middle toe $1\frac{4}{8}$, its claw $\frac{4}{8}$.

Adult Female. Plate CCLXVII. Fig. 2.

The Female resembles the male, but the middle tail-feathers are about three inches shorter.

THE AMERICAN WOODCOCK.

SCOLOPAX MINOR, GMEL.

PLATE CCLXVIII. MALE, FEMALE, AND YOUNG.

THERE is a kind of innocent simplicity in our Woodcock, which has often excited in me a deep feeling of anxiety, when I witnessed the rude and unmerciful attempts of mischievous boys, on meeting a mother bird in vain attempting to preserve her dear brood from their savage grasp. She scarcely limps, nor does she often flutter along the ground, on such occasions ; but with half extended wings, inclining her head to one side, and uttering a soft murmur, she moves to and fro, urging her young to hasten towards some secure spot beyond the reach of their enemies. Regardless of her own danger, she would to all appearance gladly suffer herself to be seized, could she be assured that by such a sacrifice she might ensure the safety of her brood. On an occasion of this kind, I saw a female Woodcock lay herself down on the middle of a road, as if she were dead, while her little ones, five in number, were endeavouring on feeble legs to escape from a pack of naughty boys, who had already caught one of them, and were kicking it over the dust in barbarous sport. The mother might have shared the same fate, had I not happened to issue from the thicket, and interpose in her behalf.

The American Woodcock, although allied to our Common Snipe, *Scolopax Wilsonii*, differs essentially from it in its habits, even more than in form. The former is a much gentler bird than the latter, and although both see at night, the Woodcock is more nocturnal than the Snipe. The latter often, without provocation or apparent object, migrates or takes long and elevated flights during the day ; but the Woodcock rarely takes flight at this time, unless forced to do so to elude its enemies, and even then removes only to a short distance. When rambling unconcernedly, it rarely passes high above the tree tops, or is seen before the dusk or after the morning twilight, when it flies rather low, generally through the woods ; and its travels are altogether performed under night. The largeness of its eyes, as compared with those of the Snipe, might of itself enable one to form such a conclusion ; but there is moreover a difference in the habits of the Woodcock and Snipe, which I have been surprised at

not finding mentioned by WILSON, who certainly was an acute observer. It is that the Woodcock, although a prober of the mire, frequently alights in the interior of extensive forests, where little moisture can be seen, for the purpose of turning up the dead leaves with its bill, in search of food beneath them, in the manner of the Passenger Pigeon, various Grakles, and other birds. This the Snipe, I believe, has never been observed to do. Indeed, although the latter at times alights on the borders of pools or streams overhung by trees, it never flies through the woods.

The American Woodcock, which in New Brunswick is named the Bog-sucker, is found dispersed in abundance during winter, over the southern parts of the Union, and now and then, in warm and sequestered places, even in the Middle Districts. Its stay in any portion of the country at this period, seems to depend altogether on the state of the weather. In the Carolinas, or even in Lower Louisiana, after a night of severe frost, I have found their number greatly diminished in places where they had been observed to be plentiful the day before. The limits of its northern migrations at the commencement of the breeding season, are yet unascertained. When in Newfoundland I was assured that it breeds there; but I met with none either in that country or in Labrador, although it is not rare in the British Provinces of New Brunswick and Nova Scotia during summer. From the beginning of March until late in October, this bird may be found in every district of the Union that affords places suited to its habits; and its numbers, I am persuaded, are much greater than is usually supposed. As it feeds by night, it is rarely met with by day, unless by a sportsman or gunner, who may be engaged in pursuing it for pleasure or profit. It is, however, killed in almost incredible numbers, from the beginning of July until late in winter, in different parts of the Union, and our markets are amply supplied with it during its season. You may at times see gunners returning from their sports with a load of Woodcocks, composed of several dozens; nay, adepts in the sport have been known to kill upwards of a hundred in the course of a day, being assisted by relays of dogs, and perhaps a change of guns. In Lower Louisiana, they are slaughtered under night by men carrying lighted torches, which so surprise the poor things that they stand gazing on the light until knocked dead with a pole or cane. This, however, takes place only on the sugar and cotton plantations.

At the time when the Woodcocks are travelling from the south towards all parts of the United States, on their way to their breeding places,

these birds, although they migrate singly, follow each other with such rapidity, that they might be said to arrive in flocks, the one coming directly in the wake of the other. This is particularly observable by a person standing on the eastern banks of the Mississippi or the Ohio, in the evening dusk, from the middle of March to that of April, when almost every instant there whizzes past him a Woodcock, with a velocity equalling that of our swiftest birds. See them flying across and low over the broad stream ; the sound produced by the action of their wings reaches your ear as they approach, and gradually dies away after they have passed and again entered the woods. While travelling with my family, in the month of October, through New Brunswick and the northern part of the State of Maine, I saw the Woodcocks returning southward in equal numbers late in the evenings, and in the same continuous manner, within a few yards or even feet of the ground, on the roads or through the woods.

This species finds itself accommodated in the warmer parts of the United States, as well as in high northern latitudes, during the breeding season : it is well known to reproduce in the neighbourhood of Savannah in Georgia, and near Charleston in South Carolina. My friend JOHN BACHMAN has known thirty young ones, not yet fully fledged, to have been killed in the vicinity of the latter place in one day. I have never found its nest in Louisiana, but I have frequently fallen in with it in the States from Mississippi to Kentucky, in which latter country it breeds abundantly. In the Middle Districts, the Woodcock begins to pair in the end of March ; in the southern a month earlier. At this season, its curious spiral gyrations, while ascending or descending along a space of fifty or more yards of height, in the manner described in the article of the Snipe, when it utters a note different from the cry of that bird, and somewhat resembling the word *kwauk*, are performed every evening and morning for nearly a fortnight. While on the ground, at this season as well as in autumn, the male not unfrequently repeats this sound, as if he were calling to others in his neighbourhood, and on hearing it answered, immediately flies to meet the other bird, which in the same manner advances toward him. On observing the Woodcock while in the act of emitting these notes, you would imagine he exerted himself to the utmost to produce them, its head and bill being inclined towards the ground, and a strong forward movement of the body taking place at the moment the *kwauk* reaches your ear. This over, the bird jerks its

half-spread tail, then erects itself, and stands as if listening for a few moments, when, if the cry is not answered, it repeats it. I feel pretty confident that, in spring, the female, attracted by these sounds, flies to the male; for on several occasions I observed the bird that had uttered the call immediately caress the one that had just arrived, and which I knew from its greater size to be a female. I am not, however, quite certain that this is always the case, for on other occasions I have seen a male fly off and alight near another, when they would immediately begin to fight, tugging at and pushing each other with their bills, in the most curious manner imaginable.

The nest, which is formed of dried leaves and grass, without much apparent care, is usually placed in some secluded part of the woods, at the foot of some bush, or by the side of a fallen trunk. In one instance, near Camden, in New Jersey, I found one in a small swamp, on the upper part of a log, the lower portion of which was covered with water to the height of several inches. The eggs, which are laid from February to the first of June, according to the latitude of the place selected, are usually four, although I have not very unfrequently found five in a nest. They average one inch and five and a half-eighths in length, by one inch and an eighth in breadth, are smooth, of a dull yellowish clay colour, varying in depth, and irregularly but pretty thickly marked with patches of dark brown, and others of a purple tint.

The young run about as soon as they emerge from the shell. To my astonishment, I once met with three of them on the border of a sand-bar on the Ohio, without their parent, and to all appearance not more than half a day old. I concealed myself near them for about half an hour, during which time the little things continued to totter about the edge of the water, as if their mother had gone that way. During the time I remained I did not see the old bird, and what became of them I know not. The young birds are at first covered with down of a dull yellowish-brown colour, then become streaked with deeper umber tints, and gradually acquire the colours of the old. At the age of from three to four weeks, although not fully fledged, they are able to fly and escape from their enemies, and when they are six weeks old, it requires nearly as much skill to shoot them on wing as if they were much older. At this age they are called *stupid* by most people; and, in fact, being themselves innocent, and not yet having had much experience, they are not sufficiently aware of the danger that may threaten them, when a two-legged monster, armed with

a gun, makes his appearance. But, Reader, observe an old cock on such occasions : there he lies, snugly squatted beneath the broad leaves of that "sconk cabbage" or dock. I see its large dark eye meeting my glance ; the bird shrinks as it were within its usual size, and, in a crouching attitude, it shifts with short steps to the other side. The nose of the faithful pointer marks the spot, but unless you are well acquainted with the ways of Woodcocks, it has every chance of escaping from you both, for at this moment it runs off through the grass, reaches a clump of bushes, crosses it, and, taking to wing from a place toward which neither you nor your dog have been looking, you become flustered, take a bad aim, and lose your shot.

Thousands of persons besides you and myself are fond of Woodcock shooting. It is a healthful but at times laborious sport. You well know the places where the birds are to be found under any circumstances ; you are aware that, if the weather has been for some time dry, you must resort to the damp meadows that border the Schuylkil, or some similar places ; that should it be sultry, the covered swamps are the spots which you ought to visit ; but if it be still lowering after continued rain, the southern sides of gentle hills will be found preferable ; that if the ground is covered with snow, the oozy places visited by the Snipe are as much resorted to by the Woodcock ; that after long frost, the covered thickets along some meandering stream are the places of their retreat ; and you are aware that, at all times, it is better for you to have a dog of any kind than to go without a dog at all. Well, you have started a bird, which with easy flaps flies before you in such a way that if you miss it, your companion certainly will not. Should he, however, prove as unsuccessful as yourself, you may put up the bird once, twice, or thrice in succession, for it will either alight in some clump of low trees close by, or plunge into a boggy part of the marsh. As you advance towards him, you may chance to put up half a score more, and *stupid* though you should be, you must be a bad shot indeed if you do not bring some one of them to the ground. Aye, you have done it, and are improving at the sport, and you may be assured that the killing of Woodcocks requires more practice than almost any other kind of shooting. The young sportsman shoots too quick, or does not shoot at all, in both which cases the game is much better pleased than you are yourself. But when once you have acquired the necessary coolness and dexterity, you may fire, charge and fire again from morning till night, and go on thus during the whole of the Woodcock season.

Now and then, the American Woodcock, after being pursued for a considerable time, throws itself into the centre of large miry places, where it is very difficult for either man or dog to approach it; and indeed if you succeed, it will not rise unless you almost tread upon it. In such cases I have seen dogs point at them, when they were only a few inches distant, and after several minutes seize upon them. When in clear woods, such as pine barrens, the Woodcock on being put up flies at times to a considerable distance, and then performs a circuit and alights not far from you. It is extremely attached to particular spots, to which it returns after being disturbed.

Its flight is performed by constant rather rapid beats of the wings, and while migrating it passes along with great speed. I am inclined to think its flight is greatly protracted, on account of the early periods at which it reaches Maine and New Brunswick:—I may be wrong, but I am of opinion that at such times it flies faster than our little Partridge. In proceeding, it inclines irregularly to the right and left at the end of every few yards; but when it has been put up after having settled for a while, it rises as if not caring about you, and at a slow pace goes a few yards and alights again, runs a few steps and squats to await your departure. It is less addicted to wading through the water than the Snipe, and never searches for food in salt marshes or brackish places. Rivulets that run through thickets, and of which the margins are muddy or composed of oozy ground, are mostly preferred by it; but, as I have already said, its place of abode depends upon the state of the weather and the degree of temperature.

The food of the Woodcock consists principally of large earth-worms, of which it swallows as many in the course of a night as would equal its own weight; but its power of digestion is as great as that of the Herons, and it is not very often that on opening one you find entire worms in its stomach. It obtains its food by perforating the damp earth or mire, and also by turning the dead leaves in the woods, and picking up the worms that lie beneath them. In captivity, Woodcocks very soon accustom themselves to feed on moistened corn meal, bits of cheese, and vermicelli soaked in water. I have seen some that became so gentle as to allow their owner to caress them with the hand. On watching several individuals probing mud in which a number of earthworms had been introduced, in a tub placed in a room partially darkened, I observed the birds plunge their bills up to the nostrils, but never deeper; and from the motion of

the parts at the base of the mandibles, I concluded that the bird has the power of working their extremities so as to produce a kind of vacuum, which enables it to seize the worm at one end, and suck it into its throat before it withdraws its bill, as do Curlews and Godwits. The quickness of their sight on such occasions was put to the test by uncovering a cat placed in the corner of the room, at the same height above the floor as the surface of the mud which filled the tub, when instantly the Woodcock would draw out its bill, jerk up its tail, spread it out, leap upon the floor, and run off to the opposite corner. At other times, when the cat was placed beneath the level of the bird, by the whole height of the tub, which was rather more than a foot, the same result took place; and I concluded that the elevated position of this bird's eye was probably intended to enable it to see its enemies at a considerable distance, and watch their approach, while it is in the act of probing, and not to protect that organ from the mire, as the Woodcock is always extremely clean, and never shews any earth adhering to the feathers about its mouth.

How comfortable it is when fatigued and covered with mud, your clothes drenched with wet, and your stomach aching for food, you arrive at home with a bag of Woodcocks, and meet the kind smiles of those you love best, and which are a thousand times more delightful to your eye, than the savoury flesh of the most delicate of birds can be to your palate. When you have shifted your clothes, and know that on the little round table already spread, you will ere long see a dish of game, which will both remove your hunger and augment the pleasure of your family; when you are seated in the midst of the little group, and now see some one neatly arrayed introduce the mess, so white, so tender, and so beautifully surrounded by savoury juice; when a jug of sparkling Newark cider stands nigh; and you, without knife or fork, quarter a Woodcock, ah Reader!—But alas! I am not in the Jerseys just now, in the company of my generous friend EDWARD HARRIS; nor am I under the hospitable roof of my equally esteemed friend JOHN BACHMAN. No, Reader, I am in Edinburgh, wielding my iron pen, without any expectation of Woodcocks for my dinner, either to-day or to-morrow, or indeed for some months to come.

SCOLOPAX MINOR, *Gmel.* Syst. Nat. vol. i. p. 661.—*Lath.* Ind. Ornith. vol. ii. p. 714.

—*Ch. Bonaparte*, Synopsis of Birds of the United States, p. 331.

WOODCOCK, SCOLOPAX MINOR, *Wils.* Amer. Ornith. vol. vi. p. 40. pl. 48. fig. 2.

LESSER WOODCOCK, *Nuttall*, Manual, vol. ii. p. 194.

Adult Male. Plate CCLXVIII. Fig. 1.

Bill double the length of the head, straight, slender, tapering, sub trigonal and deeper than broad at the base, slightly depressed towards the end. Upper mandible with the dorsal line straight, the ridge narrow, towards the end flattened, the sides nearly erect, sloping outward towards the soft obtuse edges, the tip blunt, knob-like, and longer than that of the lower mandible. Nostrils basal, lateral, linear, very small. Lower mandible broader than the upper, the angle very long and narrow, the dorsal line straight, the back broadly rounded, the sides marked with a broad groove, sloping inwards at the base, outwards towards the end, the edges soft and obtuse, the tip rounded.

Head rather large, oblong, narrowed anteriorly; eyes large, and placed high. Neck short and thick. Body rather full. Feet rather short; tibia feathered to the joint; tarsus rather short, compressed, anteriorly covered with numerous scutella, laterally and behind with subhexagonal scales, and having a row of small scutelliform scales along the outer side behind. Toes free, slender, the first very small, the second slightly shorter than the fourth, the third much longer and exceeding the tarsus in length; all scutellate above, marginate, flattish beneath. Claws very small, arched, acute, that of hind toe extremely small, of middle toe with a thin inner edge.

Plumage very soft, elastic, blended; of the fore part of the head very short, of the neck full. Wings short, rounded; the fourth and fifth quills about equal and longest, the first three extraordinarily attenuated, being in fact sublinear, narrower beyond the middle, the inner web slightly enlarged towards the end, the first as long as the seventh; secondaries broad, the outer a little incurved and rounded, the inner tapering and elongated. Tail very short, wedge-shaped, of twelve narrow feathers, which taper towards the rounded point.

Bill light yellowish-brown, dusky towards the end. Iris brown. Feet flesh coloured; claws brownish-black. The forehead is yellowish-grey, with a few dark mottlings in the centre; on the upper part of the head are two broad blackish brown transverse bands, and on the occiput

two narrower, separated by bands of light red; a brownish-black loreal band, and a narrow irregular line of the same across the cheek and continued to the occiput. The upper parts are variegated with brownish-black, light yellowish-red, and ash-grey; there are three broad longitudinal bands of the first colour, barred with the second, down the back, separated by two of the last. The inner wing-coverts and secondary quills are similarly barred; the outer pale greyish-red, faintly barred with dusky. The quills are greyish-brown, tipped with dull grey, the secondaries spotted on the outer web with dull red. Upper tail-coverts barred; tail-feathers brownish-black, their tips grey, their outer edges mottled with reddish. The sides of the neck are grey tinged with red; the lower parts in general light red, tinged with grey on the breast, on the sides and lower wing-coverts deeper; the lower tail-coverts with a central dusky line, and the tip white.

Length to end of tail 11 inches, to end of wings $9\frac{1}{2}$; wing from flexure $5\frac{1}{4}$; tail $2\frac{4}{8}$; bill along the ridge $2\frac{0}{8}$, along the edge of lower mandible $2\frac{6}{8}$; tarsus $1\frac{2}{8}$; middle toe $1\frac{6}{8}$, its claw $\frac{1}{4}$. Weight $6\frac{1}{4}$ oz.

Adult Female. Plate CCLXVIII. Fig. 2.

The Female, which is considerably larger, has the same colours as the male.

Length to end of tail $11\frac{7}{8}$, to end of wings $10\frac{6}{8}$, to end of claws $13\frac{4}{8}$; wing from flexure $5\frac{4}{8}$; tail $2\frac{4}{8}$; bill along the ridge $2\frac{10}{8}$; along the edge of lower mandible $2\frac{9}{8}$; tarsus $1\frac{2}{8}$; middle toe $2\frac{5}{8}$, its claw $\frac{1}{4}$. Weight $8\frac{1}{2}$ oz.

Young fledged. Plate CCLXVIII. Fig. 3.

The Young when fully fledged is similar to the old female.

THE GREENSHANK.

TOTANUS GLOTTIS, BECHST.

PLATE CCLXIX. MALE.

WHILE on Sand Key, which is about six miles distant from Cape Sable of the Floridas, in lat. $24^{\circ} 57'$ north, and $81^{\circ} 45'$ long. west of Greenwich, I shot three birds of this species on the 28th of May 1832. I had at first supposed them to be Tell-tale Godwits, as they walked on the bars and into the shallows much in the same manner, and, on obtaining them, imagined they were new; but on shewing them to my assistant Mr WARD, who was acquainted with the Greenshank of Europe, he pronounced them to be of that species, and I have since ascertained the fact by a comparison of specimens. They were all male birds, and I observed no material difference in their plumage. We did not find any afterwards; but it is probable that we had seen some previously, although we did not endeavour to procure them, having supposed them to be Tell-tales. Almost all the birds seen in the Floridas at this date had young or eggs; and this circumstance increased my surprise at finding all the three individuals to be males. They had been shot merely because they offered a tempting opportunity, being all close together, and it is not often that one can kill three Tell-tales at once. As I am not acquainted with the habits of this species, I have applied to my friend Mr MACGILLIVRAY, who has kindly furnished me with the following notice of them as observed in the Hebrides.

“ The Greenshank is seen in the Outer Hebrides early in spring, and generally departs in October, although I have observed individuals there in November. Previous to the commencement of the breeding-season, and after the young are fledged, it resorts to the shores of the sea, frequenting pools of brackish-water at the head of the sand-fords, and the shallow margins of bays and creeks. Its habits are very similar to those of the Redshank, with which it associates in autumn. It is extremely shy and vigilant, insomuch that one can very seldom shoot it, unless after it has deposited its eggs. Many individuals remain during the summer, when they are to be found by the lakes in the interior, of which the number in

Uist, Harris, and Lewis is astonishing. At that season it is very easily discovered, for when you are perhaps more than a quarter of a mile distant, it rises into the air with clamorous cries, alarming all the birds in its neighbourhood, flies round the place of its nest, now wheeling off to a distance, again advancing towards you, and at intervals alighting by the edge of the lake, when it continues its cries, vibrating its body all the while. I once found a nest of this bird in the island of Harris. It was at a considerable distance from the water, and consisted of a few fragments of heath and some blades of grass, placed in a shallow cavity scraped in the turf, in an exposed place. The nest, in fact, resembled that of the Golden Plover, the Curlew, or the Lapwing. The eggs, placed with their narrow ends together, were four in number, pyriform, larger than those of the Lapwing, and smaller than those of the Golden Plover, equally pointed with the latter, but proportionally broader and more rounded at the larger end than either. The dimensions of one of them, still remaining with me, are two inches exactly, by one inch and three-eighths; the ground colour is a very pale yellowish-green, sprinkled all over with irregular spots of dark brown, intermixed with blotches of light purplish-grey, the spots, and especially the blotches, more numerous on the larger end. Although in summer these birds may be seen in many parts of the islands, they are yet very rare, a pair being to be met with only at an interval of several miles. In other parts of Scotland they are seen chiefly in autumn, but are of rare occurrence."

It is curious how nearly by this account the habits of the Greenshank correspond with those of the Tell-tale Godwit, *Totanus melanoleucos*.

SCOLOPAX GLOTTIS, Linn. Syst. Nat. vol. i. p. 245.—Lath. Ind. Ornith. vol. ii. p. 270.
TOTANUS GLOTTIS, Temm. Man. d'Ornith. part ii. p. 659.—Selby, Illust. vol. ii. p. 86.
GREENSHANK, Nuttall, Manual, vol. ii. p. 618.

Male in Summer. Plate CCLXIX.

Bill long, slender, compressed, tapering, slightly recurved. Upper mandible with the dorsal line very slightly curved upwards, the ridge convex, the sides grooved nearly to the middle, afterwards convex, the edges inflected and directly meeting those of the lower mandible, the tip narrowed and slightly deflected. Nostrils basal, linear, pervious, nearer the edge than the dorsal line. Lower mandible with the angle very narrow and medial, beyond it the outline straight and ascending, the sides

grooved as far as the angle and convex, the edges sharp and inflected, the point very narrow.

Head small, oblong, narrowed before. Neck rather long, slender. Body slender. Feet long and slender; tibia bare for half its length, scutellate before and behind; tarsus long, slender, covered before and behind with numerous scutella, the narrow lateral spaces with extremely small oblong scales. Toes small, very slender, scutellate above, flat beneath, marginate, the middle toe connected with the outer by a basal membrane, with the inner by an extremely small one; first toe extremely small, second slightly shorter than fourth, third considerably longer. Claws small, compressed, arched, rather obtuse, that of third toe with a dilated inner edge.

Plumage soft and blended, on the fore part of the head very short, on the neck short and almost downy. Wings rather long, very acute, narrow; primaries tapering and rounded, the first longest, the second little shorter, the rest rapidly graduated; secondaries obliquely rounded, the inner elongated and tapering. Tail short, of twelve narrow, rounded feathers, the two middle ones considerably longer than the rest.

Bill dusky-green, black at the end. Iris brown. Feet dull greenish-grey. A broad band from the bill to the eye, all the lower parts, as well as the back, excepting a small portion anteriorly, pure white; that colour, however, does not appear on the back, when the wings are closed, it being covered over by the scapulars. Loral space white, marked with small oblong spots of greyish brown; sides of the lower part of fore neck and a portion of the breast faintly barred with grey. The upper part of the head, and the hind part and sides of the neck are greyish-white, with longitudinal central greyish-brown markings. The scapulars and inner secondaries are greyish-brown, the feathers edged with greyish-white, and lined or mottled with dark brown towards the margins; the smaller wing-coverts plain, the larger darker near the edge and margined with whitish, as are the outer secondaries; the primary quills and their coverts dark brown, the shaft of the outer white. The tail is greyish-white, undulated with light brown, the four outer feathers on each side with only a series of spots on the outer edge, which on the outermost feathers is almost obliterated.

Length to end of tail 11 inches, to end of wings 12; wing from flexure 7; tail 3; bill along the back $2\frac{1}{2}$, along the edge of lower mandible $2\frac{1}{2}$; bare part of tibia $1\frac{1}{2}$; tarsus $2\frac{1}{2}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$.

WILSON'S PETREL.

THALASSIDROMA WILSONII.

PLATE CCLXX. MALE AND FEMALE.

A LONG voyage would always be to me a continued source of suffering, were I restrained from gazing on the vast expanse of the waters, and on the ever-pleasing inhabitants of the air that now and then appear in the ship's wake. The slightest motion of the vessel effectually prevents me from enjoying the mirth of my fellow passengers, or sympathizing with them in their sickness. When the first glimpse of day appears, I make my way on deck, where I stand not unlike a newly hatched bird, tottering on feeble legs. Let the wind blow high or not, I care little which, provided it waft me toward the shores of America. If the sky be clear, the first sight of the sun excites emotions of gratitude towards the Being by whose power it was formed, and sent forth to shed its benign influence on surrounding worlds. Silent adoration occupies my soul, and I conclude with ardent wishes for the happiness of friends left far behind, and those toward whom I am proceeding. But now, ever flapping its winglets, I have marked the little bird, dusky all over save a single spot, the whiteness of which contrasts with the dark hue of the waters and the deep tone of the clear sky. Full of life and joy it moves to and fro, advances toward the ship, then shoots far away, gambols over the swelling waves, dives into their hollows, and twitters with delight as it perceives an object that will alleviate its hunger. Never fatigued, the tiny Petrels seldom alight, although at times their frail legs and feet seem to touch the crest of the foaming wave. I love to give every creature all the pleasure I can confer upon it, and towards the little things I cast over the stern such objects as I know they will most prize. Social creatures ! would that all were as innocent as you ! There are no bickerings, no jealousies among you ; the first that comes is first served ; it is all the result of chance ; and thus you pass your lives. But the clouds gather, the gale approaches, and our gallant bark is trimmed. Darkness spreads over the heavens, and the deep waters send back a blacker gloom, broken at intervals by the glimmer of the spray. You meet the blast, and your little wings bear you up against it for a while ; but you cannot encounter

the full force of the tempest; and now you have all come close beneath me, where you glide over the curling eddies caused by the motion of the rudder. You shall have all possible attention paid you, and I will crawl to the camboose, in search of food to support your tiny frames in this hour of need. But at length, night closes around, and I bid you farewell.

The gale is over; the clear blue of the sky looks clearer than ever, the sun's rays are brighter, on the quiet waters the ship seems to settle in repose, and her wings, though widely spread, no longer swell with the breeze. At a distance around us the dusky wanderers are enjoying the bright morning; the rudder-fish, yesterday so lively, has ended its career, so violently was it beaten by the waves against the vessel; and now the Petrels gather around it, as it floats on the surface. Various other matters they find; here a small crab, there the fragments of a sea-plant. Low over the deep they range, and now with little steps run on the waters. Few are their notes, but great their pleasure, at this moment. It is needless for me to feed them now, and therefore I will return to my task.

It would be extremely difficult for any individual to determine the extent of the movements of the three species of Petrel seen on the waters of the Atlantic. My opinion is that until their breeding places are repeatedly visited by naturalists, little can be known respecting the range of their flight. I have crossed the ocean many times, and have always paid more or less attention to these birds; yet I am as ignorant of their migrations as my predecessors. I have rarely seen Wilson's Petrel farther to the eastward than the Azores, and beyond these islands it generally abandoned the vessel. Along the American coast, I have not met with it to the northward beyond the 51st degree of latitude; while to the southward I have rarely observed many on the Gulf of Mexico; nor do I believe that any breed on the shores of the Floridas, or on the Bahama Islands, as alleged by WILSON, who, it would appear, stated so from report. Petrels are rarely destroyed by men, quadrupeds, or rapacious birds, when breeding; to the former they are of no value as an article of food, and by the latter they are seldom sought after; consequently they are more likely to return to their breeding places than most other birds, many of which are frequently induced to abandon them on account of the persecutions to which they are subjected. I have found the Forked-tailed Petrel breeding on our coast, in the fissures of rocks above the reach of the spray, and WILSON's digging for itself burrows in the sand or loose earth,

on low islands. The *Thalassidroma pelagica* I have never found breeding on any part of our coast ; but it is well known that it resorts to holes on certain of the Shetland Islands, among the blocks and stones of which the beaches are formed ; though it appears that in some spots, where the fisherman are in the habit of destroying them, many resort to the elevated fissures of the rocks, where also a few of the Forked-tailed species occasionally breed. The latter then, though more abundant in America, belongs to Europe also. WILSON was not aware that the species now named after him was any thing else than “ the Stormy Petrel, *Procellaria pelagica* of LINNÆUS ;” and he remarks that it “ is found over the whole Atlantic ocean, from Europe to North America, at all distances from land, and in all weathers.”

To my learned friend the PRINCE OF MUSIGNANO, the scientific world is indebted for a Memoir on Petrels, in which he has clearly shewn the specific differences of the three species mentioned above, of which he has also given figures, as well as those of the bills and feet nearly of the natural size. But the artist who drew these birds for him, or the engraver, committed an error in representing the present bird as the largest of the three.

Wilson's Petrel breeds on some small islands situated off the southern extremity of Nova Scotia, and called “ Mud Islands,” but which are formed of sand and light earth, scantily covered with grass. Thither the birds resort in great numbers, about the beginning of June, and form burrows of the depth of two or two and a half feet, in the bottom of which is laid a single white egg, a few bits of dry grass, scarcely deserving the name of a nest, having been placed for its reception. The egg measures an inch and a half in length, by seven-eighths of an inch in breadth, is almost equally rounded at both ends, and has a pure white colour. These Petrels copulate on the water, in the same manner as the Hyperborean Phalarope. By the beginning of August the young follow their parents to sea, and are then scarcely distinguishable from them. During incubation, they remain in the burrows, or at their entrance, rarely going to seek for food before the dusk.

On wing this species is more lively than the Forked-tailed, but less so than the Common Stormy Petrel. It keeps its wings nearly at right angles with its body, and makes considerable use of its feet, particularly during calm weather, when it at times hops or leaps for several feet, or pats the water, whilst its wings are extended upwards with a fluttering

motion, and it inclines its head downwards to pick up its food from the water, and I have observed it immerse the whole head beneath the surface, to seize on small fishes, in which it generally succeeded. It can walk pretty well on the deck of a vessel, or any other flat surface, and rise from it without much difficulty. Its notes are different from that of the Forked-tailed Petrel, and resembles the syllables *kee-re-kee kee*. They are more frequently emitted at night than by day. I never could ascertain whether or not these birds alight on the rigging at night, but my opinion is that they do not, for the sailors, to whom I had offered premiums for catching some of them, told me that although they flew about them while aloft, they could not see one standing anywhere.

In my journal written on board the packet ship *Columbia*, commanded by my worthy friend JOSEPH DELANO, Esq., I find the following memorandums: Wilson's Petrel was first seen, this voyage, about two hundred miles from England, and *alone* until we reached the middle of the Atlantic, when the Forked-tailed came in sight, after which the latter was most plentiful, and the pelagica by far the least numerous." During my several visits to the coasts of the Floridas, I saw scarcely any of these birds in the course of several months spent there, but I found them pretty abundant on returning towards Charleston. This species, like the others, feeds on mollusca, small fishes, crustacea, marine plants, excrements of cetaceous animals; and the greasy substances thrown from vessels. When caught, they squirt an oily substance through the nostrils, and often disgorge the same. The sexes are similar in their external appearance.

THALASSIDROMA WILSONII, *Ch. Bonaparte*, Synops. of Birds of the United States, p. 367.

STORMY PETREL, PROCELLARIA PELAGICA, *Wils. Amer. Ornith.* vol. vii. p. 90. pl. 60.

PROCELLARIA WILSONII, *Ch. Bonaparte*, Journ. Acad. Phil. vol. vi. p. 231. pl. 9.

WILSON'S STORMY PETREL, *Nuttall*, Manual, vol. ii. p. 322.

Adult Male. Plate CCLXX. Fig. 1.

Bill shorter than the head, slender, straight, with the tips curved, as broad as high at the base, compressed towards the end. Upper mandible with the nostrils forming a tube at the base, beyond which, for a short space, the dorsal line is straight, then decurved, the ridge narrow and separated from the sides by a narrow groove, the edges sharp, inflected, the tip compressed obliquely deflected. Lower mandible with the angle ra-

ther long, narrow and pointed, the dorsal line beyond it very slightly concave and decurved, the sides erect, the edges sharp, the dip slightly decurved.

Head of moderate size, roundish, anteriorly narrowed. Neck short. Body rather slender. Feet long, very slender; tibia bare at its lower part; tarsus very slender, reticulate, anteriorly with a long plate which is very slightly marked. Hind toe conical, so minute as scarcely to be perceptible; anterior toes rather long and extremely slender, obscurely scutellate above, connected by striated webs with concave margins; the third and fourth toes longest, and about equal. Claws slender, arched, depressed, acute.

Plumage very soft, blended, the feathers distinct only on the wings, which are very long; primary quills tapering, but rounded, the third longest, the second slightly longer than the fourth, the first much shorter and a little longer than the sixth; secondaries short, the outer incurved, obliquely rounded. Tail rather long, even, of twelve broad rounded feathers.

Bill and feet black, but the webs yellow excepting at the margin. Iris dark brown. The general colour of the plumage is dark greyish-brown, the quills and tail brownish-black, the outer secondary wing-coverts and some of the secondary quills light greyish-brown, and tipped with whitish. The rump, sides of the abdomen, and exterior lower tail-coverts, white.

Length to end of tail $7\frac{1}{4}$ inches, to end of wings 8, to end of claws 8; extent of wings $15\frac{3}{4}$; wing from flexure 6; tail $3\frac{3}{4}$; bill along the back $1\frac{7}{8}$, along the edge of lower mandible $1\frac{9}{16}$; tarsus $1\frac{5}{8}$, middle toe 1, its claw $1\frac{5}{8}$. Weight $1\frac{1}{8}$ oz.

Adult Female. Plate CCLXX. Fig. 2.

The Female resembles the male.

A LONG CALM AT SEA.

ON the 17th of May 1826, I left New Orleans on board the ship *Delos*, commanded by JOSEPH HATCH, Esq. of Kennebunk, bound for Liverpool. The steamer *Hercules*, which towed the ship, left us several miles outside the Balize, about ten hours after our departure; but there was not a breath of wind, the waters were smoother than the prairies of the Oppelousas, and notwithstanding our great display of canvass, we lay, like a dead whale, floating at the mercy of the currents. The weather was uncommonly fair, and the heat excessive; and in this helpless state we continued for many days. About the end of a week we had lost sight of the Balize, although I was assured by the commander, that all this while the ship had rarely answered the helm. The sailors whistled for wind, and raised their hands in all directions, anxious as they were to feel some motion in the air; but all to no purpose; it was a dead calm, and we concluded that *Æolus* had agreed with Neptune to detain us, until our patience should be fairly tried, or our sport exhausted; for sport we certainly had, both on board and around the ship. I doubt if I can better contribute to your amusement at present, than by giving you a short account of the occurrences that took place, during this sleepy fit of the being on whom we depended for our progress toward merry England.

Vast numbers of beautiful dolphins glided by the side of the vessel, glancing like burnished gold through the day, and gleaming like meteors by night. The captain and his mates were expert at alluring them with baited hooks, and not less so at piercing them with a five-pronged instrument, which they called grains; and I was delighted with the sport, because it afforded me an opportunity of observing and noting some of the habits of this beautiful fish, as well as several other kinds.

On being hooked, the Dolphin flounces vigorously, shoots off with great impetuosity to the very end of the line, when, being suddenly checked, it often rises perpendicularly several feet out of the water, shakes itself violently in the air, gets disentangled, and thus escapes. But when well secured, it is held in play for a while by the experienced fisher, soon becomes exhausted, and is hauled on board. Some persons prefer pulling them in at once, but they seldom succeed, as the force with which the fish shakes itself on being raised out of the water, is generally sufficient to

enable it to extricate itself. Dolphins move in shoals, varying from four or five to twenty or more, hunting in packs in the waters, as wolves pursue their prey on land. The object of their pursuit is generally the Flying-fish, now and then the Bonita; and when nothing better can be had, they will follow the little Rudder-fish, and seize it immediately under the stern of the ship. The Flying-fishes, after having escaped for a while by dint of their great velocity, but on being again approached by the Dolphin, emerge from the waters, and spreading their broad wing-like fins, sail through the air and disperse in all directions, like a covey of timid partridges before the rapacious falcon. Some pursue a direct course, others diverge on either side; but in a short time they all drop into their natural element. While they are travelling in the air, their keen and hungry pursuer, like a greyhound, follows in their wake, and performing a succession of leaps, many feet in extent, rapidly gains upon the quarry, which is often seized just as it falls into the sea.

Dolphins manifest a very remarkable sympathy with each other. The moment one of them is hooked or grained, those in company make up to it, and remain around until the unfortunate fish is pulled on board, when they generally move off together, seldom biting at any thing thrown out to them. This, however, is the case only with the larger individuals, which keep apart from the young, in the same manner as is observed in several species of birds; for when the smaller Dolphins are in large shoals, they all remain under the bows of a ship, and bite in succession at any sort of line, as if determined to see what has become of their lost companions, in consequence of which they are often all caught.

You must not suppose that the Dolphin is without its enemies. Who, in this world, man or fish, has not enough of them? Often it conceives itself on the very eve of swallowing a fish, which, after all, is nothing but a piece of lead, with a few feathers fastened to it, to make it look like a flying-fish, when it is seized and severed in two by the insidious Balacouda, which I have once seen to carry off by means of its sharp teeth, the better part of a Dolphin that was hooked, and already hoisted to the surface of the water.

The Dolphins caught in the Gulf of Mexico during this calm were suspected to be poisonous; and to ascertain whether this was really the case, our cook, who was an African Negro, never boiled or fried one without placing beside it a dollar. If the silver was not tarnished by the time the Dolphin was ready for the table, the fish was presented to the passen-

gers, with an assurance that it was perfectly good. But as not a single individual of the hundred that we caught had the property of converting silver into copper, I suspect that our African sage was no magician.

One morning, that of the 22d of June, the weather sultry, I was surprised, on getting out of my hammock, which was slung on deck, to find the water all around swarming with Dolphins, which were sporting in great glee. The sailors assured me that this was a certain "token of wind," and, as they watched the movement of the fishes, added, "aye, and of a fair breeze too." I caught several Dolphins in the course of an hour, after which scarcely any remained about the ship. Not a breath of air came to our relief all that day, no, nor even the next. The sailors were in despair, and I would probably have become despondent also, had not my spirits been excited by finding a very large Dolphin on my hook. When I had hauled it on board, I found it to be the largest I had ever caught. It was a magnificent creature. See how it quivers in the agonies of death! its tail flaps the hard deck, producing a sound like the rapid roll of a drum. How beautiful the changes of its colours! Now it is blue, now green, silvery, golden, and burnished copper; now it presents a blaze of all the hues of the rainbow intermingled; but, alack! it is dead, and the play of its colours is no longer seen. It has settled into the deep calm that has paralyzed the energies of the blustering winds, and smoothed down the proud waves of the ocean.

The best bait for the Dolphin is a long stripe of shark's flesh. I think it generally prefers this to the semblance of a flying-fish, which indeed it does not often seize unless when the ship is under weigh, and it is made to rise to the surface. There are times, however, when hunger and the absence of their usual food, will induce the Dolphins to dash at any sort of bait; and I have seen some caught by means of a piece of white linen fastened to a hook. Their appetite is as keen as that of the Vulture, and whenever a good opportunity occurs, they gorge themselves to such a degree that they become an easy prey to their enemies the Balacouda and the Bottle-nosed Porpoise. One that had been grained while lazily swimming immediately under the stern of our ship, was found to have its stomach completely crammed with flying-fish, all regularly disposed side by side, with their tails downwards,—by which I mean to say that the Dolphin always *swallows its prey tail foremost*. They looked in fact like so many salted herrings packed in a box, and were to the number of twenty-two, each six or seven inches in length.

The usual length of the Dolphins caught in the Gulf of Mexico is about three feet, and I saw none that exceeded four feet two inches. The weight of one of the latter size was only eighteen pounds; for this fish is extremely narrow in proportion to its length, although rather deep in its form. When just caught, the upper fin, which reaches from the forehead to within a short distance of the tail, is of a fine dark blue. The upper part of the body in its whole length is azure, and the lower parts are of a golden hue, mottled irregularly with deep blue spots. It seems that they at times enter very shallow water, as in the course of my last voyage along the Florida coast, some were caught in a seine, along with their kinsman the "Cavalier," of which I shall speak elsewhere.

The flesh of the Dolphin is rather firm, very white, and lies in flakes when cooked. The first caught are generally eaten with great pleasure, but when served many days in succession, they become insipid. It is not, as an article of food, equal to the Balacouda, which is perhaps as good as any fish caught in the waters of the Gulf of Mexico.

THE FRIGATE PELICAN.

TACHYPETES AQUILUS, VIEILL.

PLATE CCLXXI. ADULT.

PREVIOUS to my visit to the Florida Keys, I had seen but few Frigate Birds, and those only at some distance, while I was on the Gulf of Mexico, so that I could merely recognise them by their mode of flight. On approaching Indian Key, however, I observed several of them, and as I proceeded farther south, their numbers rapidly increased; but on the Tortugas very few were observed. This bird rarely travels farther eastward than the Bay of Charleston in South Carolina, although it is abundant at all seasons from Cape Florida to Cape Sable, the two extreme points of the peninsula. How far south it may be found I cannot tell.

The Frigate Pelicans may be said to be as gregarious as our Vultures: You see them in small or large flocks, according to circumstances. Like our Vultures, they spend the greater part of the day on wing, searching for food; and like them also, when gorged or roosting, they collect in large flocks, either to fan themselves or to sleep close together. They are equally lazy, tyrannical, and rapacious, domineering over birds weaker than themselves, and devouring the young of every species, whenever an opportunity offers, in the absence of the parents; in a word, they are most truly Marine Vultures.

About the middle of May, a period which to me appeared very late for birds found in so warm a climate as that of the Florida Keys, the Frigate Pelicans assemble in flocks of from fifty to five hundred pairs or more. They are seen flying at a great height over the islands on which they have bred many previous seasons, courting for hours together; after which they return towards the mangroves, alight on them, and at once begin to repair the old nests or construct new ones. They pillage each other's nests of their materials, and make excursions for more to the nearest keys. They break the dry twigs of trees with ease, passing swiftly on wing, and snapping them off by a single grasp of their powerful bill. It is indeed a beautiful sight to see them when thus occupied, especially when several are so engaged, passing and repassing with the swiftness of

thought over the trees whose tops are blasted ; their purpose appears as if accomplished by magic. I know only two other birds that perform the same action : one of them is the Forked-tailed Hawk, the other our swift or Chimney Swallow ; but neither of them is so expert as the Frigate Pelican. It sometimes happens that this bird accidentally drops a stick while travelling towards its nest, when, if this should happen over the water, it plunges after it and seizes it with its bill before it has reached the waves.

The nests are usually placed on the south side of the keys, and on such trees as hang over the water, some low, others high, several in a single tree, or only one, according to the size of the mangrove, but in some cases lining the whole side of the island. They are composed of sticks crossing each other to the height of about two inches, and are flattish but not very large. When the birds are incubating, their long wings and tail are seen extending beyond the nest for more than a foot. The eggs are two or three, more frequently the latter number, measure two inches and seven-eighths in length, two in breadth, being thus of a rather elongated form, and have a thick smooth shell, of a greenish-white colour, frequently soiled by the filth of the nests. The young are covered with yellowish-white down, and look at first as if they had no feet. They are fed by regurgitation, but grow tardily, and do not leave the nest until they are able to follow their parents on wing.

At that period the plumage of the young females is marbled with grey and brown, with the exception of the head and the lower parts, which are white. The tail is about half the length it attains at the first moult, and is brownish-black, as are the primaries. After the first change of plumage, the wings become longer, and their flight is almost as elegant and firm as that of older birds.

The second spring plumage of this sex is brownish-black on the upper parts, that colour extending over the head and around the neck in irregular patches of brown, continued in a sharp angle towards the breast, but separated on its sides by the white that ascends on either side of the neck towards the head. The lower tail-coverts are brownish-black, as are the lower parts of the belly and flanks ; the shoulders alone remaining as at first. The tail and wings are perfect.

The third spring, the upper parts of the head and neck are of a purer brownish-black, which extends down to the extremity of the angle, as are the feathers of the belly and the lower tail-coverts, the dark colour reach-

ing now to within five inches of the angle on the breast. The white of the intermediate space has become much purer; here and there light tints of bronze appear; the feet, which at first were dull yellow, have become of a rich reddish-orange, and the bill is pale blue. The bird is now capable of breeding, although its full plumage is not obtained until the next moult, when the colours become glossy above, and the white of the breast pure.

The changes which the males undergo are less remarkable. They are at first, when fully fledged, entirely of the colour seen on the upper parts of the young females; and the tint is merely improved afterwards, becoming of a deeper brownish-black, and acquiring purer reflections of green, purple and bronze, which in certain lights are seen on every part of the head, neck and body, and in very old males on the wings and tail. They also commence breeding the third spring. But I now return to the habits of this interesting bird.

The Frigate Pelican is possessed of a power of flight which I conceive superior to that of perhaps any other bird. However swiftly the Cayenne Tern, the smaller Gulls or the Jager move on wing, it seems a matter of mere sport to it to overtake any of them. The Goshawk, the Peregrine, and the Gyr Falcon, which I conceive to be the swiftest of our hawks, are obliged to pursue their victim, should it be a Green-winged Teal or Passenger Pigeon, at times for half a mile, at the highest pitch of their speed, before they can secure them. The bird of which I speak comes from on high with the velocity of a meteor, and on nearing the object of its pursuit, which its keen eye has spied while fishing at a distance, darts on either side to cut off all retreat, and with open bill forces it to drop or disgorge the fish which it has just caught. See him now! Yonder, over the waves leaps the brilliant dolphin, as he pursues the flying-fishes, which he expects to seize the moment they drop into the water. The Frigate Bird, who has marked them, closes his wings, dives toward them, and now ascending, holds one of the tiny things across his bill. Already fifty yards above the sea, he spies a porpoise in full chase, launches towards the spot, and in passing seizes the mullet that had escaped from its dreaded foe; but now, having obtained a fish too large for his gullet, he rises, munching it all the while, as if bound for the skies. Three or four of his own tribe have watched him and observed his success. They shoot towards him on broadly extended pinions, rise in wide circles, smoothly,

yet as swiftly as himself. They are now all at the same height, and each as it overtakes him, lashes him with its wings, and tugs at his prey. See ! one has fairly robbed him, but before he can secure the contested fish it drops. One of the other birds has caught it, but he is pursued by all. From bill to bill, and through the air, rapidly falls the fish, until it drops quite dead on the waters, and sinks into the deep. Whatever disappointment the hungry birds feel, they seem to deserve it all.

Sights like these you may every day see, if you take ship and sail for the Florida Keys. I have more to tell you, however, and of things that to me were equally pleasing. While standing in the cool veranda of Major GLASSEL of the United States army, at Key West, I observed a Frigate Pelican that had forced a Cayenne Tern, yet in sight, to drop a fish, which the broad-winged warrior had seized as it fell. This fish was rather large for the Tern, and might probably be about eight inches in length. The Frigate Pelican mounted with it across his bill about a hundred yards, and then tossing it up caught it as it fell, but not in the proper manner. He therefore dropped it, but before it had fallen many yards, caught it again. Still it was not in a good position, the weight of the head, it seemed, having prevented the bird from seizing it by that part. A second time the fish was thrown upwards, and now at last was received in a convenient manner, that is, with its head downwards, and immediately swallowed.

When the morning light gladdens the face of nature, and while the warblers are yet waiting in silence the first rays of the sun, whose appearance they will hail with songs of joy, the Frigate Bird, on extended pinions, sails from his roosting place. Slowly and gently, with retracted neck he glides, as if desirous of quietly trying the renovated strength of his wings. Toward the vast deep he moves, rising apace, and before any other bird views the bright orb emerging from the waters. Pure is the azure of the heavens, and rich the deep green of the smooth sea below ; there is every prospect of the finest weather ; and now the glad bird shakes his pinions ; and far up into the air, far beyond the reach of man's unaided eye, he soars in his quiet but rapid flight. There he floats in the pure air, but thither can fancy alone follow him. Would that I could accompany him ! But now I see him again, with half-closed wings, gently falling towards the sea. He pauses a while, and again dives through the air. Thrice, four times, has he gradually approached the surface of the ocean ; now he shakes his pinions as violently as the swordsman whirls his

claymore ; all is right ; and he sweeps away, shooting to this side and that, in search of prey.

Mid-day has arrived, and threatening clouds obscure the horizon ; the breeze, ere felt, ruffles the waters around ; a thick mist advances over the deep ; the sky darkens, and as the angry blasts curl the waves, the thunder mutters afar ; all nature is involved in gloom, and all is in confusion, save only the Man-of-war Bird, who gallantly meets the gale. If he cannot force his way against the storm, he keeps his ground, balancing himself like a hawk watching his prey beneath ; but now the tempest rages, and rising obliquely, he shoots away, and ere long surmounts the tumultuous clouds, entering a region calm and serene, where he floats secure until the world below has resumed its tranquillity.

I have frequently observed the Frigate Bird scratch its head with its feet while on wing ; and this happening one day, when the bird fell through the air, as it is accustomed to do at such times, until it came within shot, I killed it when almost over my head, and immediately picked it up. I had been for years anxious to know what might be the use of the pectinated claws of birds ; and on examining both its feet with a glass, I found the racks crammed with insects, such as occur on the bird's head, and especially around the ears. I also observed that the pectinated claws of birds of this species were much longer, flatter, and more comb-like than those of any other species with which I am acquainted. I now therefore feel convinced, that, however useful this instrument may be on other occasions, it is certainly employed in cleansing parts of the skin of birds which cannot be reached by the bill.

At times these birds may be seen chasing and jostling each other as if engaged in a frolic, after which they bear away on extended wings, and fly in a direct course until out of sight. But although their flight is easy and powerful, in a degree not surpassed by any other bird, they move with great difficulty on the ground. They can rise, however, from a sand-bar, no matter how low and level it may be. At such times, as well as when sitting on the water, which it occasionally does, the bird raises its wings almost perpendicularly, spreads its tail half erect, and at the first flap of the former, and simultaneous stroke of the latter, on the ground or the water, bounces away. Its feet, however, are of little service beyond what I have mentioned, and the supporting of its body when it has alighted on a branch, on which it rarely stands very erect, although it moves sideways on it, as Parrots sometimes do. It never dives, its bill

in form resembling that of the Cormorants, which also never plunge from on wing in pursuit of fish, and only dip into the water when dropping from a perch or a rock to escape danger, as the Anhingas and some other birds are also accustomed to do.

When the Frigate Pelican is in want of a dead fish, a crab, or any floating garbage suited to its appetite, it approaches the water in the manner of Gulls, holding its wings high, and beating them until the bill has performed its duty, which being accomplished, the bird immediately rises in the air and devours its prey.

These birds see well at night, although they never go to sea excepting by day. At various times I have accidentally sailed by mangrove keys on which hundreds were roosted, and apparently sound asleep, when, on my firing a gun for the purpose of starting whatever birds might be there, they would all take to wing and sail as beautifully as during day, returning to the trees as the boats proceeded. They are by no means shy; indeed they seem unaware of danger from a gun, and rarely all go off when a party is shooting at them, until a considerable number has been obtained. The only difficulty I experienced in procuring them was on account of the height to which they so soon rose on leaving the trees; but we had excellent guns, and our worthy pilot's "Long Tom" distinguished itself above the rest. At one place, where we found many hundreds of them, they sailed for nearly half an hour over our heads, and about thirty were shot, some of them at a remarkable height, when we could hear the shot strike them, and when, as they fell to the water, the sound of their great wings whirling through the air resembled that produced by a sail flapping during a calm. When shot at and touched ever so slightly, they disgorge their food in the manner of Vultures, Gulls and some Terns; and if they have fallen and are approached, they continue to vomit the contents of their stomach, which at times are extremely putrid and nauseous. When seized, they evince little disposition to defend themselves, although ever so slightly wounded, but struggle and beat themselves until killed. Should you, however, place your fingers within their open bill, you might not withdraw them scatheless.

They are extremely silent, and the only note which I heard them utter was a rough croaking one. They devour the young of the Brown Pelican when quite small, as well as those of other birds whose nests are flat and exposed during the absence of the parent birds; but their own young suffer in the same manner from the still more voracious Turkey

Buzzard. The notion that the Frigate Bird forces the Pelicans and Boobies to disgorge their prey is erroneous. The Pelican, if attacked or pursued by this bird, could alight on the water or elsewhere, and by one stroke of its sharp and powerful bill destroy the rash aggressor. The Booby would in all probability thrust its strong and pointed bill against the assailant with equal success. The Cayenne Tern, and other species of that genus, as well as several small Gulls, all abundant on the Florida coasts, are its purveyors, and them it forces to disgorge or drop their prey. Those of the deep are the dolphins, porpoises, and occasionally the sharks. Their sight is wonderfully keen, and they now and then come down from a great height to pick up a dead fish only a few inches long floating on the water. Their flesh is tough, dark, and, as food, unfit for any other person than one in a state of starvation.

I have given a figure of a very beautiful old male in spring plumage, which was selected from a great number of all ages. I have also represented the feet of an individual between two and three years old, on account of the richness of their colour at that age, whereas in the adult males they are quite black.

PELECANUS AQUILUS, *Lin.* Syst. Nat. vol. i. p. 216.

PELECANUS AQUILUS, *LEUCOCEPHALUS*, AND *PALMERSTONI*, *Lath.* Ind. Ornith. vol. ii. pp. 885, 886.

TACHYPETES AQUILUS, *Ch. Bonaparte*, Synops. of Birds of the United States, p. 406.

FRIGATE PELICAN, *Nuttall*, Manual, vol. ii. p. 491.

Adult Male. Plate CCLXXI.

Bill much longer than the head, strong, broader than deep, excepting towards the curved extremity, the edges irregularly jagged. Upper mandible with the dorsal line slightly concave, at the tip decurved, its ridge broad and nearly flat at the base, narrowed and more convex towards the end, the sides separated from the ridge by a narrow groove, convex, the edges sharp and inflected, with a prominence at the commencement of the curve of the elongated compressed hooked point. Nostrils basal, linear, inconspicuous. Lower mandible with the angle extremely long, narrow, the membrane bare and dilatable into a small pouch, the very short dorsal line decurved, the sides erect at the base, convex in the rest of their extent, the edges sharp and much inflected, at the narrow tip decurved.

Head of moderate size, oblong. Neck of moderate length, stout. Body rather slender. Feet very short, stout; tibia very short; tarsus

extremely short, feathered ; toes all placed in the same plane, and connected by short reticulated webs with concave margins, but running narrow along the sides ; they are scutellate above, broad and papillate beneath ; first toe small, second shorter than fourth, third much longer than the latter. Claws strong, compressed, curved, acute, that of middle toe long, obliquely flattened, and pectinate on the inner edge.

Eyelids and gular sac, with the anterior part of the neck, bare. Plumage compact, on the head, neck, breast, and back, shining. The feathers of the head, neck, and back are lanceolate and acuminate ; of the breast and sides broader ; of the wings small and rounded. Wings extremely long, pointed, the first quill longest, the rest rapidly diminishing ; the secondaries very short, obliquely rounded and acuminate, the inner long and tapering. Tail very long, deeply forked, of twelve rounded feathers, the outer narrow and abruptly rounded.

Bill light purplish-blue, white in the middle, the curved tips dusky. Inside of mouth carmine ; gular sac orange. Bare space about the eye purplish-blue ; iris deep brown. Feet light carmine above, orange beneath. The general colour of the plumage is brownish-black, the head, neck, back, breast, and sides, splendid with green and purple reflections, the former predominating on the head, the latter on the back. The wings are tinged with grey, the inner secondaries and tail with brown ; the shafts of the former black, of the latter brown.

I have observed in specimens which I considered to be very old, that the gular sac was covered with pustules, similar to those found at times around the base of the mandibles of the *Cathartes Aura*, and which appear to be the effects of disease, occasioned by their coming frequently in contact with putrid substances.

Length to end of tail 41 inches, to end of wings 37 ; to end of claws $24\frac{1}{2}$; wing from flexure 25, tail 18 ; extent of wings 86 ; bill along the back $5\frac{1}{2}$, along the edge of lower mandible $5\frac{7}{8}$; tarsus $\frac{3}{4}$; middle toe $2\frac{1}{2}$, its claw $\frac{1}{2}$. Weight 3 lb. 6 oz.

The Adult Female differs from the male in several respects. The former has the whole plumage dark-coloured, whereas the latter has a broad white space on the breast, that colour extending forwards along the sides of the neck, and encircling it about the middle. The feathers of the back are less elongated and pointed, and their lustre is much inferior to that of the male. The dark parts also are more tinged with brown, and most of the smaller wing-coverts are of the latter colour.

RICHARDSON'S JAGER.

LESTRIS RICHARDSONII, SWAINS.

PLATE CCLXXII. MALE AND YOUNG.

THIS bird, though rare on the coast of the United States, visits the shores of Massachusetts and Maine, where, during winter, it is seen over the bays and inlets, to which various species of Gulls also resort at the same season. It is more shy and difficult to be approached than the Pomarine Jager. Its flight is rapid and greatly protracted; and, like the other species of this genus, it harasses the smaller Gulls and Terns, forcing them to disgorge their food. Dr RICHARDSON informs us that it breeds in considerable numbers in the barren grounds, at a distance from the coast, and that it feeds on testaceous mollusca, which are plentiful in the small lakes of the fur countries. I am unable to afford any information respecting its habits; nor can I state decidedly the number of eggs which it lays, although I have procured several of them. They measure two inches and three-eighths in length, by one inch and five-eighths in breadth, are of an oval rather pointed form, and have a dull greyish-yellow ground, patched with umber and faint purple, the markings closer towards the larger end. I am extremely doubtful as to the right which this bird has to rank as a species distinct from *L. parasiticus*.

LESTRIS RICHARDSONII, RICHARDSON'S JAGER, *Swains. and Richards. Fauna-Bor. Amer. part ii. p. 433.*—*Nuttall, Manual, vol. ii. p. 319.*

Adult Male in Spring. Plate CCLXXII. Fig. 1.

Bill about the length of the head, rather slender, straight, the tip curved. Upper mandible with the dorsal line straight, toward the end curved, the ridge broad and convex, the sides separated from the ridge by a narrow groove, extremely narrow and convex, the edges sharp and inflected, the tip compressed, rather obtuse. Nostrils in the fore part of the nasal groove, nearer the tip than the base, submarginal, pervious, linear-oblong, wider anteriorly. Lower mandible with the angle long and narrow, a slight prominence at its extremity, beyond which the dorsal line is straight and ascending, the sides sloping outward and convex, the edges sharp and inflected, the tip obliquely truncate and rather obtuse.

Head rather small, oblong, much narrowed before. Neck of moderate length. Body rather slender. Feet rather short, and of moderate strength; tibia bare at its lower part; tarsus anteriorly covered with broad decurved scutella, on the sides with oblong scales, behind with smaller oblong prominent scales; hind toe extremely small and elevated, the fore toes of moderate size, connected by reticulated webs, which have their margins convex; the third toe longest, the fourth a little shorter, the second considerably shorter; all covered above with numerous scutella, the lateral ones margined externally with small prominent scales directed forwards. Claws of moderate size, curved, acute, compressed, that of third toe with a sharp inner edge.

The plumage in general is close, elastic, soft, and blended; the feathers on the back and wings rather compact and distinct. Wings very long, rather broad, pointed; primary quills tapering and rounded, the first longest, the rest rapidly graduated; secondary rather short, obliquely rounded. Tail feathers of moderate length, excepting the two middle, which extend beyond the rest and taper to a point, the other feathers broad and rounded, there being twelve in all.

Bill greyish-black, the upper part bluish. Iris brown. Legs and feet black. The general colour of the plumage is of a sooty brown, the upper part of the head, the primary quills, and the tail darker, the breast and abdomen lighter; the shafts of the primary quills white, of the tail feathers brownish.

Length to end of tail $18\frac{1}{2}$ inches, to end of wings 17; extent of wings 40; wing from flexure $12\frac{3}{4}$; tail $8\frac{1}{2}$, the middle feathers $2\frac{3}{4}$ longer than the rest; bill along the back $1\frac{4}{5}$, along the edge of lower mandible $1\frac{1}{4}$; tarsus $1\frac{8}{12}$; middle toe $1\frac{5}{12}$, its claw $\frac{1}{12}$.

Young Bird in September. Plate CCLXXII. Fig. 2.

Bill light blue, dusky at the end. Iris brown. Tarsi and basal portion of the toes and webs light blue, the rest black. The general colour of the plumage is sooty brown, lighter on the neck and lower parts; the feathers of the back are all tipped with whitish, and the breast, sides, lower wing-coverts, abdomen, and lower tail-coverts, are undulatingly barred with pale greyish-yellow.

Length to end of tail $15\frac{1}{2}$ inches, to end of wings $13\frac{1}{2}$, to end of claws $13\frac{1}{4}$; wing from flexure $11\frac{1}{2}$; tail $6\frac{1}{2}$, the middle feathers only $\frac{3}{4}$ longer than the rest; bill along the back $1\frac{1}{4}$; tarsus $1\frac{1}{4}$; middle toe and claw $1\frac{1}{4}$. Weight 7 oz.

THE CAYENNE TERN.

STERNA CAYANA, LATH.

PLATE CCLXXIII. MALE.

ON reaching the entrance of the little port of St Augustine in East Florida, I observed more Cayenne Terns together than I had ever before seen. I had afterwards good opportunities of watching them both during that season and the following, about the Keys. Their shyness surprised me not a little, especially as they are very seldom molested, and it was such that I could study their habits only with the aid of a good glass. I found them at first in great flocks, composed of several hundred individuals, along with Razor-billed Shearwaters, which also congregated there in great numbers. During low water, both species resorted to a large flat sand-bar in the middle of the channel, where they reposed until the return of the tide, sitting close together, in an easy posture, with their heads facing the breeze. They kept separate, however, placing themselves in parallel lines twenty or thirty paces asunder, and either lay flat on the sand, or stood up and plumed themselves. My attempts to procure some of them were always futile, for they flew off when I was yet several hundred yards distant, and moved directly towards the sea. It was pleasing to see the whole of these birds take to wing at the same moment, the jetty hue of the Shearwaters contrasting with the pale blue of the Terns, and the brilliantly-coloured bills of both species, their different modes of flight, and their various evolutions presenting a most agreeable sight. The Terns on these occasions constantly emitted their harsh loud cries, while the Shearwaters moved in perfect silence. After spending several days in unsuccessful endeavours to approach them, I employed several boats, which advanced towards the sands at several points, and we shot as many as we wished, for as the flocks passed over any of the boats, several individuals were brought down at once, on which the rest would assail the gunners, as if determined to rescue their brethren, and thus afford subjects for them on which to exercise their skill. We found it necessary to use large shot, the Cayenne Tern being a strong and tough bird, the largest of the genus met with on our Atlantic coasts. When wounded, however slightly, they disorged in the manner of Vultures; and when brought

to the water disabled, they at once endeavoured to make off from the shores, swimming with buoyancy and grace, though without making much progress. When seized they at once erected their beautiful crest, threw up the contents of their stomach, uttered loud cries, and bit severely. One that was merely touched in the wing, and brought ashore, through a high surf, by my Newfoundland dog, stuck fast to his nose until forced to relinquish its hold by having its throat squeezed, after which it disgorged seven partially digested fishes.

Although the Cayenne Tern often searches for food over the sea, and at times several miles from the shore, it gives a decided preference to the large inlets running parallel to the coast of the Floridas, within the high sandy embankments, as well as the rivers in the interior of the peninsula. They alight on the banks of racoon oysters, so abundant in the inlets, and are seen in company with the Semipalmated Snipe and the American Oystercatcher, searching for food like these birds, and devouring crabs and such fishes as are confined in small shallow pools. These they catch with considerable agility, in a manner not employed by any of our other Terns. While on the St John's River, I saw them alight on stakes, in the manner of the Marsh Tern and the Noddy ; and as I ascended that stream, I often saw them, at the distance of seventy miles from the sea, perched in the middle of the river, on the same sticks as the Florida Cormorants, and found them more easily approached in the dusk than during broad daylight. Until then I had supposed this species to be entirely oceanic, and averse from mingling with any other.'

The flight of the Cayenne Tern is strong and well sustained, although less lively or graceful than that of the smaller species, excepting on particular occasions. They usually incline their bill downwards, as they search for their prey, like the other Terns, but keep at a much greater height, and plunge towards the waters with the speed of an arrow, to seize on small fishes, of which they appear to capture a great number, especially of the " mullets," which we saw moving about in shoals, composed of individuals of different sizes. When travelling, these birds generally proceed in lines ; and it requires the power of a strong gale to force them back, or even to impede their progress, for they beat to windward with remarkable vigour, rising, falling, and tacking to right and left, so as to seize every possible opportunity of making their way. In calm and pleasant weather, they pass at a great height, with strong unremitted flappings, uttering at intervals their cries, which so nearly resemble the shriek-

ing notes of our little Parrakeet, that I have often for a moment thought I heard the latter, when in fact it was only the Tern. At times their cries resemble the syllables *kwee-reek*, repeated several times in succession, and so loudly as to be heard at the distance of half a mile or more, especially when they have been disturbed at their breeding places, on which occasion they manifest all the characteristic violence of their tribe, although they are much more guarded than any other species with which I am acquainted, and generally keep at a considerable distance from their unwelcome visitors.

On the 11th May 1832, I found the Cayenne Terns breeding on one of the Tortugas. There they had dropped their eggs on the bare sand, a few yards above high-water mark, and none of the birds paid much attention to them during the heat of the day. You may judge of my surprise when, on meeting with this Tern breeding on the coast of Labrador, on the 18th of June 1833, I found it sitting on two eggs deposited in a nest neatly formed of moss and placed on the rocks, and this on a small island, in a bay more than twelve miles from our harbour, which itself was at some distance from the open Gulf. On another equally sequestered islet, some were found amidst a number of nests of our Common Gull; and, during my stay in that country, I observed that this Tern rarely went to the vicinity of the outer coast, for the purpose of procuring food, probably because there was an extreme abundance of small fishes of several kinds in every creek or bay. Until that period I was not aware that any Tern could master the *Lcstris Pomarinus*, to which, however, I there saw the Cayenne Tern give chase, driving it away from the islands on which it had its eggs. On such occasions, I observed that the Tern's power of flight greatly exceeded that of the Jager; but the appearance of the Great Black-backed Gull never failed to fill it with dismay, for although of quicker flight, none of the Terns dared to encounter that bird, any more than they would venture to attack the Frigate Pelican in the Floridas.

The Cayenne Tern usually lays two eggs; in a few instances I found only one, and I concluded that no more had been laid, as it contained a chick, which would not have been there had the Great Gull ever visited the nest. The eggs measure two inches and six-eighths in length, by one inch and six and a half eighths in breadth, and are rather sharp at the smaller end. They have a pale yellowish ground colour, irregularly spotted with dark umber and faint purplish marks, dispersed all over

but not close. The eggs, like those of the other species, afford good eating.

I never saw the young of this bird while small, and cannot speak of the changes which they undergo from their first state until autumn. Then, however, they greatly resemble the young of the Sandwich Tern, their colour being on the upper parts of a dark greyish-brown, transversely marked with umber, and on the lower dull white. While in this plumage, they keep by themselves, in flocks of fifty or more individuals, and remain separated from the old birds until spring, when they have acquired the full beauty of their plumage, although they appear rather inferior in size.

My surprise at finding this species breeding in Labrador was increased by the circumstance of its being of rare occurrence at any season along the coasts of our Middle and Eastern Districts. Nor does it become abundant until you reach the shores of North Carolina, beyond which it increases the farther south you proceed. It winters in the Floridas, and along the shores of the Mexican Gulf; but I never saw it far up the Mississippi. While on the coast of Newfoundland, on the 14th of August, I saw several individuals on their way southward, flying very high, and keeping up their remarkable cries.

The flesh of every species of Tern is oily, like that of the Gulls and Jagers, and the smallest hole made by shot affords an exit to the grease, which is apt to destroy the beauty of their elastic plumage, so that it is very difficult to preserve them, both on account of this circumstance, and of the quantity of oil that flows from their bill. In no species have I found this to be more remarkably the case than in the Cayenne Tern.

STERNA CAYANA, *Lath.* Ind. Ornith. vol. ii. p. 804.—*Ch. Bonaparte*, Synops. of Birds of the United States, p. 353.

CAYENNE TERN, *Nuttall*, Manual, vol. ii. p. 268.

Adult Male in Spring. Plate CCLXXXIII.

Bill longer than the head, stout, nearly straight, compressed, very acute. Upper mandible with the dorsal line slightly arched, the ridge broad and convex at the base, narrowed towards the end, the sides convex, the edges sharp and direct, the tip acute. Nasal groove short; nostrils basal, lateral, linear, direct, pervious. Lower mandible with the angle very narrow, acute, extending to the middle, the dorsal line straight,

the sides slightly convex, nearly erect, the sharp edges inflected, the tip very acute.

Head rather large, oblong; neck of moderate length and thick; body rather slender; feet short, stout. Tibia bare for a considerable space; tarsus short, roundish, covered all round with small scales; first toe very small, third longest, fourth a little shorter, the anterior connected by reticulated webs having an incurved margin; claws slightly curved, compressed, acute, that of hind toe smallest, of middle toe by much the largest, and having the inner edge thin and dilated.

Plumage soft, close, blended, very short on the fore part of the head elongated behind, rather compact on the back and wings. Wings extremely long, narrow, and pointed; primary quills tapering but rounded, the first longest, the rest rapidly graduated; secondary short, rather narrow, tapering, rounded. Tail long, deeply forked, of twelve feathers, of which the outer taper to a rounded point.

Bill bright carmine, the tips paler. Iris dark brown. Feet black. The top of the head and occiput is greenish black; the back and wings light greyish-blue; the primary quills bluish-grey on their outer webs, darker on the outer part of the inner, their inner part white, as are the ends and inner webs of the secondaries; upper tail-coverts and tail greyish-white; all the other parts are pure white.

Length to end of tail 19 inches, to end of wings $20\frac{1}{2}$; extent of wings 44; wing from flexure 15; tail 7; bill along the back $2\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $3\frac{1}{2}$; middle toe 1, its claw $\frac{1}{2}$. Weight $14\frac{1}{2}$ oz.

The figure of the Crab in the plate was introduced on account of its singularly bright red colour, which, when the animal is boiled, changes to pale yellow. It is rather common along the rocky shores of some of the Florida Keys, and is excellent eating.

THE SEMIPALMATED SNIPE, OR WILLET.

TOTANUS SEMIPALMATUS, TEMM.

PLATE CCLXXIV. MALE AND FEMALE.

MANY individuals of this fine species spend the winter in our Southern States, and the extent of its migration northwards is comparatively limited. Some are occasionally seen as far eastward as the neighbourhood of Boston, and a few have been known to breed not far from New Bedford in Massachusetts; but beyond that state the species may be said to be unknown. Their propensity to remain at all seasons in the immediate vicinity of the coast is such, that they are very seldom met with far inland, even along large rivers, on the margins of which they might find the food they usually prefer. I once shot one in autumn on the lower part of the Ohio, but it was much emaciated, and I concluded that its appearance there was merely accidental. From the mouth of the Mississippi to New York it is pretty generally found during the breeding season; but all the individuals betake themselves in winter to the shores of Carolina, Georgia, Florida, and the countries bordering the Mexican Gulf. I have very little doubt that those seen by Mr SAY on the banks of the Missouri had accidentally visited that country, as the favourite haunts of this species at all seasons are the salt-marshes and sea-shores. It is well ascertained that it occurs on the western coast, and I have seen many skins of it recently brought from the mouth of the Columbia River. It is probably from thence that it migrates to the shores of the Saskatchewan, where it was observed by Dr RICHARDSON along the small saline lakes.

In the Middle States, the Semipalmated Snipe is known to every fisherman gunner by the name of "Willet;" and from the Carolinas southward by that of "Stone Curlew." In the latter districts, during autumn and winter, it resorts to the stony shores of estuaries, the banks of racoon oysters, and the extensive salt-marshes so common there along the coast. On the 1st of May 1832, while rambling over some large and partially submersed islets of the Floridas called Duck Keys, scantily covered with bushes and some mangroves, I saw a good number of these birds in company with the Great Marbled Godwit. The Willets were all paired and very clamorous, although we found none of their nests. To my grea

surprise, I saw them alight on the bushes and trees with as much ease as if they had been land birds, stand erect, open their wings to the sun, and await our approach, exhibiting, when thus perched, much less shyness than when on the ground. Until then I had never observed such a habit in this bird, and indeed had felt surprised at seeing the Bartram Snipe, *Totanus Bartramius*, alight on fences and trees. Nothing of this kind is mentioned by WILSON, who, however, speaks of both species as if he were well acquainted with their habits. A few days after my visit to the Duck Keys, some nests containing eggs were found on other islets not far distant.

Along the shores of the Carolinas, this species begins to lay about the beginning of April; but in the Middle States, in New Jersey, for example, it seldom makes its appearance before the 15th of April, and does not begin to breed until a month later. At the approach of the love season, the Willets shew a great degree of vivacity, ramble much on wing, and fill the air with their sharp cries. Once mated, they attend to the security of their eggs and brood with affectionate care, and are silent until disturbed by the approach of some of their numerous enemies. The sight of a Crow, a Turkey Buzzard, a quadruped of any kind, and more especially of a gunner, at once excites the greatest alarm; and, rising on wing, they fly above and around you at a considerable distance, vociferating their anger with great vehemence, and continually endeavouring to allure you away from the spot where their treasure is concealed. Should they have young broods, they not unfrequently alight within sight, emit clicking and querulous notes, raise their wings upright, and run over the ground as if wounded, moving in so pitiable a manner as frequently to excite a good feeling towards them in the gunner, who, should he be a parent himself, is almost sure to leave them unmolested. When much pursued, the birds join and form a flock, the individuals of which continue to wheel through the air, at some distance from their nests, until their enemy has departed.

The Semipalmated Snipe is at all times a shy and wary bird, so that in approaching it the sportsman requires to use the greatest caution. The method which I found most effectual was to employ a well-trained dog, and conceal myself among the rankest herbage of the marshes. The Willets rarely failed to fly close over the dog, and as he now and then, playfully, as it were, approached me, the birds came within shooting distance. On such occasions, if one is brought down, another may follow,

provided the sportsman is quick ; but, after being thus shot at, the Willets generally take a long circuit, and remove towards some clear spot near the water, where they alight and watch your motions. The cries of one suffice to alarm all within hearing, and you see all of them with outstretched legs and necks running away as you approach. Often at the very instant when you are preparing to shoot, they all rise on wing, fly across some bay or creek, and betake themselves to the marsh, where they are safe from your pursuit.

During winter you frequently see these birds in the Southern States along the naked shores. The moment they see you the cry of alarm is sounded, and the flock, which now consists of one, two, or perhaps three families, suffer you to come almost within shot, as if purposely to tantalize you, but at this moment fly off circuitously over the water, and alight at the distance of some hundred yards. At such times you may procure them by floating your boat quietly along the shores ; but the experiment rarely succeeds on the same flock more than once. When they are on large racoon-oyster beds, it is almost impossible to approach them ; and if there should be a few Curlews or Oyster-catchers among them, it were better for you to go in search of some other game.

The flight of this species is strong, rapid, and greatly protracted. Its movements on wing greatly resemble those of the Oyster-catcher, and, unless during the breeding season, are performed low over the waters. They seldom rise without emitting their usual notes, which resemble the syllables *will-willet*, or *will, will, willet*, and are different from the softer and more prolonged whistling notes which they emit during the love season. They generally travel in flocks, even in spring, and congregate for the purpose of breeding, being attracted when passing by the notes of those which have already arrived at a chosen spot. The males and females remain together until autumn, when several families join and live peaceably together. When wounded and brought to the water, they swim tolerably well, but do not dive, although they now and then, on being approached, try to submerge themselves.

The Willets retire to the interior of the larger salt-marshes for the purpose of forming their nests and raising their broods in security. There, in the vicinity of the shallow pools, which frequently occur in such places, the bird prepares a nest on the ground, among the rank grass, of which the tenement itself is composed. It is usually raised to the height of from three to five inches, and is, I believe, annually augmented or repaired.

WILSON says that this augmentation or raising of the nest is carried on whilst the Willet is laying and sitting; but this I have never observed. The eggs, usually four in number, are placed with the broad end outwards, as is the case with those of most birds of this tribe. They measure two inches and one-eighth in length, by one inch and a half in breadth, are much flattened at the larger end, and more or less pointed at the other. The shell is smooth, of a dull yellowish-olive tint, irregularly spotted and blotched with dark umber. The eggs afford excellent eating. Both birds incubate, sitting alternately day and night. The young run about on leaving the shell, and are carefully fed by their parents. They are of a greyish hue, and covered with down, but soon shew feathers, grow rapidly, become fat and juicy, and by the time they are able to fly, afford excellent food. At the first moult they acquire their full plumage.

The food of the Willet consists of aquatic insects, small crabs, and fiddlers, which they procure either by pursuing them on foot or by probing for them in their burrows, along the mud bars, and in the crevices of the creeks and salt-water ditches. I have also observed it turning over stones and shells to seek for worms beneath them.

The males are smaller than the females. I have presented you with figures of the adult both in the winter and summer plumage.

SCOLOPAX SEMIPALMATUS, *Lath. Ind. Ornith.* vol. ii. p. 722.

TOTANUS SEMIPALMATUS, *Ch. Bonaparte*, *Synops. of Birds of the United States*, p. 323.

SEMIPALMATED SNIPE, *SCOLOPAX SEMIPALMATA*, *Wils. Amer. Ornith.* vol. vii. p. 27. pl. 56. fig. 3.

TOTANUS SEMIPALMATUS, SEMIPALMATED TATLER, *Swains. and Richards. Fauna-Bor. Amer.* part ii. p. 388.

SEMIPALMATED SNIPE OR WILLET, *Nuttall, Manual*, vol. ii. p. 144.

Adult Male in spring. Plate CCLXXIV. Fig. 1.

Bill long, slender, compressed, tapering, straight or recurved in an almost imperceptible degree. Upper mandible with the dorsal line straight, the ridge convex, flattened at the base, the sides grooved to the middle, afterwards convex, the edges broad and flattened, the breadth of the mandible a little increased towards the point, which is narrowed, slightly deflected and obtuse. Nostrils subbasal, linear, pervious, nearer the edge than the dorsal line. Lower mandible with the angle very narrow and

medial, beyond it the outline slightly ascending and straight, sides grooved as far as the angle, and convex, the edges broad and flat, the point narrow and slightly incurved.

Head small, oblong, narrowed before. Neck rather long, slender. Body slender. Feet long and slender; tibia bare for nearly half its length, scutellate before and behind; tarsus long, slender, covered before and behind with numerous scutella, the narrow lateral spaces with extremely small oblong scales. Toes small, slender, scutellate above, flat beneath, marginate, the anterior toes connected by basal membranes which extend along their sides, the outer membrane larger than the inner; first toe extremely small, second and fourth about equal, third little longer. Claws small, compressed, slightly arched, obtuse, that of third toe with a dilated inner edge.

Plumage soft and blended, on the fore part of the head very short, on the neck short and very soft. Wings long, very acute, narrow; primaries tapering and rounded, the first longest, the second little shorter, the rest rapidly graduated; secondaries obliquely rounded, the inner elongated and tapering. Tail short, of twelve narrow, rounded feathers, the two middle ones a little longer than the rest.

Bill light blue, dusky towards the end. Iris brown. Feet light blue; claws black. Head and neck brownish-grey, streaked with blackish-brown; the throat, and a band from the bill over the eye white. Fore part of back and scapulars brownish-grey, variegated with central markings and bars of blackish-brown; the hind part of the back brownish-grey with a gloss of olive. Wing-coverts grey with central lines of brownish-black; primary coverts and primary quills brownish-black, but the latter white in their basal half; outer secondaries white, inner like the scapulars. Lower wing-coverts dusky; breast and sides white, the latter undulatingly barred with brownish-black; abdomen and lower and upper tail-coverts white, some of them, however, with a few dusky bars. The four middle tail-feathers are barred with brownish-black and brownish-grey, the rest pale grey fading to white on the outer, and all more or less minutely mottled with pale brown.

Length to end of tail $15\frac{1}{4}$ inches, to end of wings 15, to end of claws $17\frac{1}{2}$; extent of wings $27\frac{1}{4}$; wing from flexure $8\frac{1}{4}$; tail $3\frac{1}{2}$; bill along the back $2\frac{1}{4}$; along the edge of lower mandible $2\frac{1}{2}$; tarsus $2\frac{1}{4}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{4}$. Weight 7 oz.

Adult Female in winter. Plate CCLXXIV. Fig. 2.

In winter the upper parts are light brownish-grey, the fore part of the neck and the sides of the same colour but paler; the throat, breast, abdomen, and rump white; the lower and upper tail-coverts with a few undulated lines of brownish-grey; the wings as in summer; as is the tail, only that the middle feathers are grey.

Length $15\frac{1}{2}$ inches; wing from flexure $8\frac{1}{2}$; extent of wings 31; tail $3\frac{1}{4}$; bill along the back $2\frac{7}{8}$, along the edge of lower mandible $2\frac{1}{4}$; tarsus $1\frac{7}{8}$; middle toe $1\frac{5}{8}$, its claw $\frac{1}{4}$. Weight 10 oz.

THE NODDY TERN.

STERNA STOLIDA, LINN.

PLATE CCLXXV.

ABOUT the beginning of May, the Noddies collect from all parts of the Gulf of Mexico, and the coasts of Florida, for the purpose of returning to their breeding places, on one of the Tortugas called Noddy Key. They nearly equal in number the Sooty Terns, which also breed on an island a few miles distant. The Noddies form regular nests of twigs and dry grass, which they place on the bushes or low trees, but never on the ground. On visiting their island on the 11th of May 1832, I was surprised to see that many of them were repairing and augmenting nests that had remained through the winter, while others were employed in constructing new ones, and some were already sitting on their eggs. In a great many instances, the repaired nests formed masses nearly two feet in height, and yet all of them had only a slight hollow for the eggs, broken shells of which were found among the entire ones, as if they had been purposely placed there. The birds did not discontinue their labours, although there were nine or ten of us walking among the bushes, and when we had gone a few yards into the thicket, thousands of them flew quite low over us, some at times coming so close as to enable us to catch a few of them with the hand. On one side might be seen a Noddy carrying a stick in its bill, or a bird picking up something from the ground to add to its nest; on the other several were seen sitting on their eggs unconscious of danger, while their mates brought them food. The greater part rose on wing as we advanced, but re-alighted as soon as we had passed. The bushes were rarely taller than ourselves, so that we could easily see the eggs in the nests. This was quite a new sight to me, and not less pleasing than unexpected.

The Noddy, like most other species of Terns, lays three eggs, which average two inches in length, by an inch and three-eighths in breadth, and are of a reddish-yellow colour, spotted and patched with dull red and faint purple. They afford excellent eating, and our sailors seldom failed to collect bucketfuls of them daily during our stay at the Tortugas. The wreckers assured me that the young birds remain along with the old through the winter, in which respect the Noddy, if this account be correct,

differs from other species, the young of which keep by themselves until spring.

At the approach of a boat, the Noddies never flew off their island, in the manner of the Sooty Terns. They appeared to go farther out to sea than those birds, in search of their food, which consists of fishes mostly caught amid the floating sea-weeds, these Terns seizing them, not by plunging perpendicularly downwards, as other species do, but by skimming close over the surface in the manner of Gulls, and also by alighting and swimming round the edges of the weeds. This I had abundant opportunities of seeing while on the Gulf of Mexico.

The flight of this bird greatly resembles that of the Night Hawk when passing over meadows or rivers. When about to alight on the water, the Noddy keeps its wings extended upwards, and touches it first with its feet. It swims with considerable buoyancy and grace, and at times immerses its head to seize on a fish. It does not see well by night, and it is perhaps for this reason that it frequently alights on the spars of vessels, where it sleeps so sound that the seamen often catch them. When seized in the hand, it utters a rough cry, not unlike that of a young American Crow taken from the nest. On such occasions, it does not disgorge its food, like the Cayenne Tern and other species, although it bites severely, with quickly repeated movements of the bill, which, on missing the object aimed at, snaps like that of our larger Fly-catchers. Some which I kept several days, refused all kinds of food, became dull and languid, and at length died.

While hovering over us near their nests, these birds emitted a low querulous murmur, and, if unmolested, would attempt to alight on our heads. After a few visits, however, they became rather more careful of themselves, although the sitting birds often suffered us to put a hat over them. Like the Sooty Tern, this species incubates both day and night. The differences exhibited by Terns with respect to their mode of nestling and incubation, are great, even in the same neighbourhood, and under the same degree of atmospheric temperature. This species breeds on bushes or low trees, placing several nests on the same bush, or in fact as many as it will hold. The *Sterna fuliginosa* scoops out a slight hollow in the sand, under the bushes, without forming any nest, and incubates closely like the former. The Sandwich, the Cayenne, and the Roseate Terns, drop their eggs on the sand or the bare rock, and seldom sit upon them until evening, or during cloudy or rainy weather. The Cayenne, Sooty,

and Noddy Terns differ greatly in their flight, their manner of feeding, and the extent of their migrations. The Tail of the Noddy is cuneate, instead of being forked, in which respect it differs essentially from that of the other species. Perhaps the naturalists who placed it in the same genus with the Roseate Tern, may have been nodding over their books.

Since writing the above account, I have read the article on this species by my esteemed friend Mr NUTTALL, and am surprised to find him state that "the Noddies breed in great numbers in the Bahama Islands, laying their eggs on the shelvings of rocks." No authority is given for this, which I regret, because had he given the fact as observed by himself, it would have astonished me as much as my account of the breeding of the Noddy in the Tortugas may astonish others.

STERNA STOLIDA, Linn. Syst. Nat. vol. i. p. 227.—*Lath. Ind. Ornith.* vol. ii. p. 805.

—*Ch. Bonaparte*, Synops. of Birds of the United States, p. 356.

NODDY, *Nuttall*, Manual, vol. ii. p. 285.

Adult Male. Plate CCLXXV.

Bill longer than the head, strong, slender, nearly straight, compressed, very acute. Upper mandible with the dorsal line slightly arched, the ridge broad and convex at the base, narrowed towards the end, the sides convex, the edges sharp and inflected, the tip acute. Nasal groove extended to beyond half the length of the bill, slightly deflected towards the edge; nostrils submedial, linear, direct, pervious. Lower mandible with the angle very narrow, acute, extending to the middle, the dorsal line straight, or very slightly concave, the sides convex, the sharp edges inflected, the tip extremely acute.

Head of moderate size, oblong, compressed; neck of moderate length; body slender; feet very short, rather stout. Tibia bare for a short space; tarsus very short, roundish, covered anteriorly with small scutella, laterally and behind with reticulated scales; toes slender, the first very small, the third longest, the fourth nearly as long, the second much shorter, all scutellate above, the anterior united by reticulated webs, having an incurved margin; claws curved, compressed, acute, that of hind toe smallest, of middle toe by much the largest, and having the inner edge thin and dilated.

Plumage soft, close, blended, very short on the head; the feathers in general broad and rounded. Wings very long, narrow, and pointed;

primary quills tapering but rounded, the first longest, the rest rapidly graduated ; secondaries short, broad, rather acute, the inner more tapering. Tail long, cuneate, of twelve tapering rounded feathers.

Bill black. Iris brown. Feet dull brownish-red, the webs dusky, the claws black. The general colour is sooty brown ; the primaries and tail-feathers brownish-black ; the upper part of the head greyish-white ; a black spot anterior to and over the eye.

Length to end of tail $16\frac{4}{5}$, to end of wings $16\frac{1}{5}$, to end of claws $13\frac{1}{2}$; extent of wings 32 ; wing from flexure $10\frac{1}{2}$; tail $5\frac{1}{2}$; bill along the back $1\frac{5}{8}$, along the edge of lower mandible $2\frac{1}{4}$; tarsus $1\frac{10}{16}$, middle toe $1\frac{1}{4}$, its claw $\frac{1}{2}$. Weight $4\frac{3}{4}$ oz.

STILL BECALMED.

ON the 4th of June we were still in the same plight, although the currents of the Gulf had borne us to a great distance from the place where, as I have informed you, we had amused ourselves with catching Dolphins. These currents are certainly very singular, for they carried us hither and thither, at one time rendering us apprehensive of drifting on the coast of Florida, at another threatening to send us to Cuba. Sometimes a slight motion in the air revived our hopes, swelled our sails a little, and carried us through the smooth waters like a skater gliding on ice; but in a few hours it was again a dead calm.

One day several small birds, after alighting on the spars, betook themselves to the deck. One of them, a female Rice Bunting, drew our attention more particularly, for, a few moments after her arrival, there came down, as if in her wake, a beautiful Peregrine Falcon. The plunderer hovered about for a while, then stationed himself on the end of one of the yard-arms, and suddenly pouncing on the little gleaner of the meadows, clutched her and carried her off in exultation. But, Reader, mark the date, and judge besides of my astonishment when I saw the Falcon feeding on the Finch while on wing, precisely with the same ease and composure as the Mississippi Kite might shew while devouring high in air a Red-throated Lizard, swept from one of the magnificent trees of the Louisiana woods.

There was a favourite pet on board, belonging to our Captain, and which was nothing more nor less than the female companion of a cock, in other words, a common hen. Some liked her because she now and then dropped a fresh egg,—a rare article at sea, even on board the *Delos*; others, because she exhibited a pleasing simplicity of character; others again, because, when they had pushed her overboard, it gave them pleasure to see the poor thing in terror strike with her feet, and strive to reach her floating home, which she would never have accomplished, however, had it not been for the humane interference of our Captain, Mr JOSEPH HATCH of Kennebunk. Kind, good-hearted man! when, several weeks after, the same pet hen accidentally flew overboard, as we were scudding along at a furious rate, I thought I saw a tear stand in his eye, as she

floated panting in our wake.—But as yet we are becalmed, and heartily displeased at old *Æolus* for overlooking us.

One afternoon we caught two sharks. In one of them, a female, about seven feet long, we found ten young ones, all alive, and quite capable of swimming, as we proved by experiment; for, on casting one of them into the sea, it immediately made off, as if it had been accustomed to shift for itself. Of another, that had been cut in two, the head half swam off out of our sight. The rest were cut in pieces, as was the old shark, as bait for the dolphins, which I have already said are fond of such food.

Our captain, who was much intent on amusing me, informed me that the rudder-fishes were plentiful astern, and immediately set to dressing hooks for the purpose of catching them. There was now some air above us, the cotton sheets aloft bulged out, the ship moved through the water, and the captain and I repaired to the cabin window. I was furnished with a fine hook, a thread line, and some small bits of bacon, as was the captain, and we dropped our bait among the myriads of delicate little fishes below. Up they came, one after another, so fast in succession, that, according to my journal, we caught three hundred and seventy in about two hours. What a mess! and how delicious when roasted! If ever I am again becalmed in the Gulf of Mexico, I shall not forget the rudder-fish. The little things scarcely measured three inches in length; they were thin and deep in form, and afforded excellent eating. It was curious to see them keep to the lee of the rudder in a compact body; and so voracious were they, that they actually leaped out of the water at the sight of the bait, as “sunnies” are occasionally wont to do in our rivers. But the very instant that the ship became still, they dispersed around her sides, and would no longer bite. I made a figure of one of them, as indeed I tried to do of every other species that occurred during this death-like calm. Not one of these fishes did I ever see when crossing the Atlantic, although many kinds at times come close to the stern of any vessel in the great sea, and are called by the same name.

Another time we caught a fine Porpoise, which measured about two yards in length. This took place at night, when the light of the moon afforded me a clear view of the spot. The fish, contrary to custom, was grained, instead of being harpooned; but in such a way and so effectually, through the forehead, that it was thus held fast, and allowed to flounce and beat about the bows of the ship, until the person who had struck it gave the line holding the grains to the Captain, slid down along the

bob-stays with a rope, and after a while managed to secure it by the tail. Some of the crew then hoisted it on board. When it arrived on deck, it gave a deep groan, flapped with great force, and soon expired. On opening it next morning, eight hours after death, we found its intestines still warm. They were arranged in the same manner as those of a pig ; the paunch contained several cuttlefishes partially digested. The lower jaw extended beyond the upper about three-fourths of an inch, and both were furnished with a single row of conical teeth, about half an inch long, and just so far separated as to admit those of one jaw between the corresponding ones of the other. The animal might weigh about four hundred pounds ; its eyes were extremely small, its flesh was considered delicate by some on board ; but in my opinion, if it be good, that of a large alligator is equally so ; and on neither do I intend to feast for some time. The Captain told me that he had seen these Porpoises leap at times perpendicularly out of the water to the height of several feet, and that small boats have now and then been sunk by their falling into them, when engaged with their sports.

During all this time flocks of Pigeons were crossing the Gulf, between Cuba and the Floridas ; many a Rose-breasted Gull played around by day ; Noddies alighted on the rigging by night ; and now and then, the Frigate bird was observed ranging high over head in the azure of the cloudless sky.

The directions of the currents were tried, and our Captain, who had an extraordinary genius for mechanics, was frequently employed in turning powder horns and other articles. So calm and sultry was the weather that we had a large awning spread, under which we took our meals, and spent the night. At length we got so wearied of it, that the very sailors I thought seemed disposed to leap overboard, and swim to land. But at length, on the thirty-seventh day after our departure, a smart breeze overtook us. Presently there was an extraordinary bustle on board ; about twelve the Tortugas light-house bore north of us, and in a few hours more we gained the Atlantic. Æolus had indeed awakened from his long sleep ; and on the nineteenth day after leaving the Capes of Florida, I was landed at Liverpool.

THE KING DUCK.

FULIGULA SPECTABILIS, BONAP.

PLATE CCLXXVI. MALE AND FEMALE.

THIS beautiful species rarely advances farther south along our eastern coast than the neighbourhood of the Bay of Boston. I have, however, been assured by old and trustworthy gunners that the King Duck, about thirty years ago, was by no means of rare occurrence there during winter, and that a few had been known to breed in company with the Eider along the coast. At the period of my arrival at Labrador, the greater number of the King Ducks had proceeded farther north; and although some were seen there, we found none of their nests. I can say nothing of the habits of this bird, which, although they may be similar to those of the Eider, must yet differ in many particulars, as is the case with all birds that are nearly allied in form. The eggs of the King Duck collected by Captain JAMES CLARK ROSS, R. N., measure two inches and five-eighths by one inch and three-fourths, and have a smooth shell, of an uniform dull greenish-colour.

ANAS SPECTABILIS, Linn. Syst. Nat. vol. ii. p. 198.—Lath. Ind. Ornith. vol. ii. p. 845.

FULIGULA SPECTABILIS, Ch. Bonaparte, Synops. of Birds of the United States, p. 389.

SOMATERIA SPECTABILIS, KING DUCK, Swains. and Richards. Fauna-Bor. Amer. part ii. p. 447.

KING DUCK, Nuttall, Manual, vol. ii. p. 414.

Adult Male. Plate CCLXXVI. Fig. 1.

Bill shorter than the head, much deeper than broad at the base, somewhat depressed towards the end, which is broad and rounded. Upper mandible with a soft tumid compressed substance at the base, extending perpendicularly upon the forehead, and by a medial band of feathers divided into two broad lobes, the dorsal line beyond this descending to the unguis, then slightly curved, the ridge broadly convex, the sides sloping and convex, the edges perpendicular, with about forty-five narrow inter-

nal lamellæ, the unguis very large, broadly elliptical. Nostrils submedial, oblong, large, pervious, near the ridge. Lower mandible flattened, with the angle very long, rather narrow and rounded, the dorsal line short and slightly convex, the edges with about fifty lamellæ, the unguis very large and elliptical.

Head large, compressed. Neck rather short. Body bulky and much depressed. Feet very short, strong, placed rather far behind; tarsus very short, compressed, anteriorly having a series of narrow scutella in its whole length, and a partial series above the fourth toe, the rest reticulated with angular and oblong scales; hind toe small, with a free membrane beneath; anterior toes longer than the tarsus, connected by reticulated membranes having a sinus at their free margins, the inner with a broad lobed marginal membrane, the outer with a thickened edge; all obliquely scutellate above; the third and fourth about equal and longest. Claws small, arched, compressed, obtuse, that of first toe very small and more curved, of middle toe largest, more depressed, and with a dilated inner edge.

Plumage short, dense, blended. Feathers on the fore part of the head extremely small, on the upper part very narrow, on the sides of the head very short, stiff and hair-like. Wings rather short, narrow, and pointed; primary quills curved, strong, tapering, the second longest, the first almost as long, the rest rapidly graduated; secondaries short, broad, rounded, excepting the inner, which are elongated, tapering, and curved outwards. Tail very short, much rounded, of fourteen stiff narrow feathers.

Bill flesh-coloured, the sides of the upper mandible and the soft frontal lobes bright orange. Iris bright yellow. Feet dull orange, the webs dusky, the claws brownish-black. The band of feathers separating the frontal lobes, and those along their upper and posterior edges, black; lower eyelid, and a forked patch on the throat, the same. The upper part of the head light purplish-grey; the hair-like feathers on the sides of the head pale bluish-green; the fore neck cream coloured; the sides and hind part of the neck, a patch on the wings, and another on each side of the rump, white. The hind part of the back, the scapulars, the larger wing-coverts, and the secondary quills, brownish-black, the latter glossed with green; primary quills and tail blackish-brown. Breast and abdomen blackish-brown; lower wing-coverts white, the outer brown.

Length to end of tail 25 inches, to end of wings 23; wing from flexure

11½ ; tail 3½ ; bill from the base of the tumid part 1½, along the edge of lower mandible 2½ ; tarsus 1½ ; middle toe 2½, its claw ¾.

Adult Female. Plate CCLXXVI. Fig. 2.

The Female differs greatly from the male. The bill is shorter, its tumid basal lobes narrow and not ascending perpendicularly, so that the forehead is low as in most Ducks. The feathers of the head and upper part of the neck are small, soft, and uniform. The colour of the bill is pale greenish-grey ; the iris dull yellow ; the feet dull ochre. The head and neck are pale greyish-yellow, with small lines of brownish-black. The feathers of the back are brownish-black towards the end, with yellowish-grey edges, the scapulars brownish-red on the margins. The quills and tail-feathers are deep greyish-brown ; the recurved secondaries broadly edged externally with yellowish-grey. The fore part of the lower neck and breast, the sides, and lower tail-coverts, have a central mark and sub-marginal band of brownish-black, the middle of the breast scarcely spotted, being of the general colour of the lower parts, which is pale yellowish-brown.

Length to end of tail 20 inches, to end of wings 17 ; wing from flexure 10½ ; tail 3½ ; bill from the separation of the lobes 1½ ; tarsus 1½ ; middle toe 2½, its claw ¾.

HUTCHINS'S GOOSE.

ANSER HUTCHINSII, RICHARDSON.

PLATE CCLXXVII. ADULT.

IN the first article in this volume, that of the Canada Goose, in which I have described the habits of that bird at considerable length, I had occasion to allude to a small species called by the gunners of Maine the Winter or Flight Goose, which they described to me as resembling the large and common kind in almost every particular except its size. Although it was not my good fortune while there to meet with the bird spoken of by men who were well acquainted with it, I have no doubt that it is the very species which has been named in honour of Mr HUTCHINS, and that its periodical appearance along our eastern coast will ere long be fully established. This is the more to be expected as Dr RICHARDSON informs us that it is abundant about Hudson's Bay, where it was long mistaken for the Brent, or an emaciated Canada Goose. In the mean time, having been presented with a specimen of the bird in question by my highly esteemed and gallant friend Captain JAMES CLARK ROSS, I have embraced the opportunity thus offered, of laying before you a representation, the first I believe that has yet appeared, of HUTCHINS'S Goose.

For fifteen months, rendered trebly long and wearisome by heavy and difficult marches, under the most distressing feelings, that most amiable and accomplished traveller, carried with him many specimens of rare birds, with the view of contributing to the advancement of our knowledge. Would, Reader, that you could sympathize with me in the feelings of pride and pleasure with which I call him friend. May his name be as extensively known as his worth deserves !

Some weeks after my drawing was finished, and when I had arrived in Edinburgh, I had the gratification of receiving a long and most interesting letter from him, of which I present you with an extract. " I have very great pleasure in having it now in my power to offer to your acceptance the specimen of this interesting species from which your drawing was taken. It was the child of my solicitude, and my constant companion during a long and tedious journey, after the abandonment of our ship, until our being received on board the *Isabella*, an interval of

fifteen months; and this will account in a great measure for the miserable plight in which the specimen first came into your hands. I will dispose of it according to your wishes, and am most happy to place it in the hands of one who knows so well how to appreciate the interesting associations connected with it.

"These birds arrived in flocks about the middle of June, in the neighbourhood of Felix Harbour, and soon dispersed in pairs to their breeding place. At Iglookik, the only place where we had before met with them, their nests were found in the marshes near the sea; but on this occasion several pairs constructed their nests on a ledge of rock near the foot of a high precipice; immediately above them the Dovekies, Loons, several species of Gulls, and near its summit, the Jer-Falcon and Raven, built their nests.

"From three to four eggs were found in each nest, of a pure white, and of an oval form, measuring 3.1 inches by 2.1, and weighing from 1800 to 2000 grains.

"The female bird is smaller than the male. To the measurements given by Dr RICHARDSON, which are very accurate, we may add that its extent of wings is fifty inches, and that it averages about four pounds and a half of weight. Its flesh is of a most exquisite flavour."

ANSER HUTCHINSII, HUTCHINS'S BARNACLE GOOSE, *Swains. and Richards. Fauna Bor. Amer. part ii. p. 470.*

Adult. Plate CCLXXVII.

Bill shorter than the head, higher than broad at the base, somewhat conical, depressed towards the end, rounded at the tip. Upper mandible with the dorsal line sloping, the ridge slightly flattened at the base, convex in the rest of its extent, the sides sloping, the edges soft, the oblique internal lamellæ about thirty; the unguis roundish, convex. Nasal groove oblong, parallel to the ridge, filled by the soft membrane of the bill; nostrils medial, lateral, longitudinal, narrow-elliptical, open, pervious. Lower mandible straight, with the angle very long, narrow and rounded, the edges with about forty oblique lamellæ.

Head small, oblong, compressed. Neck long and very slender. Body full. Feet short, stout, placed behind the centre of the body; legs bare a little above the joint; tarsus short, a little compressed, covered all round with angular scales, those behind smaller; hind toe very small, with a

narrow membrane, third the longest, fourth considerably shorter, but longer than second; all reticulated above at the base, but with narrow transverse scutella towards the end; the three anterior connected by reticulated webs, the outer with a thick margin, the inner with the edge more dilated. Claws small, arched, rather compressed, except that of the middle toe, which is bent obliquely inwards and depressed, with a curved edge.

Plumage close, blended on the neck and lower parts of the body, compact on the upper. The feathers of the head and neck very narrow, of the back very broad and abrupt, of the breast and belly broadly rounded. Wings long; primaries strong, curved, the second longest, but the first and third almost as long, the rest rapidly graduated; secondaries long, rather narrow, rounded. Tail short, slightly rounded, of sixteen rounded feathers.

Bill, feet, and claws black. Iris brown. Head and two upper thirds of the neck glossy black. A large subtriangular patch of white on each side of the head and neck. The general colour of the upper parts is brownish-grey, the feathers margined with paler; of the lower parts pale greyish-brown, margined with yellowish-grey; the abdomen and lower tail-coverts white; the hind part of the back brownish-black. The primary quills and tail-feathers are deep brown.

Length to end of tail 25 inches, extent of wings 50; wing from flexure $16\frac{1}{4}$; tail $5\frac{1}{4}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $2\frac{1}{2}$; middle toe 2, its claw $\frac{4}{17}$. Weight $4\frac{1}{2}$ lb.

In the Fauna Boreali-Americana, the tail-feathers are stated to be fourteen. In my specimen they are sixteen, and it is probable that the full number is eighteen, as the two middle ones seem to be wanting.

SCHINZ'S SANDPIPER.

TRINGA SCHINZII, BREHM.

PLATE CCLXXVIII. MALE AND FEMALE.

ALTHOUGH I have met with this species at different times in Kentucky, and along our extensive shores, from the Floridas to Maine, as well as on the coast of Labrador, I never found it breeding. Indeed, I have not met with it in the United States excepting in the latter part of autumn and in winter. Those procured in Labrador were shot in the beginning of August, and were all young birds, apparently about to take their departure. My drawing of the two individuals represented in the plate was made at St Augustine in East Florida, where I procured them on the 2d December 1831. I have always found these birds gentle and less shy than any other species of the genus. They fly at a considerable height with rapidity, deviating alternately to either side, and plunge toward the ground in a manner somewhat resembling that of the Solitary Sandpiper. When accidentally surprised, they start with a repeated *weet*, less sonorous than that of the bird just mentioned. They search for food along the margins of pools, creeks and rivers, or by the edges of sand-bars, and mix with other species.

TRINGA SCHINZII, Ch. Bonaparte, Synops. of Birds of the United States, p. 249.—

Amer. Ornith. vol. iv. p. 69. pl. 24. fig. 2. Winter.—Swains. and Richards. Fauna

Bor. Amer. part. ii. p. 384.

SCHINZ'S SANDPIPER, Nuttall, Manual, vol. ii. p. 109.

Adult Male in winter. Plate CCLXXVIII. Fig. 1.

Bill about the length of the head, slender, subcylindrical, straight, compressed at the base, the point slightly enlarged and rather obtuse. Upper mandible with the dorsal line straight, excepting at the tip, the ridge narrow and convex, broader and flattened towards the end, the sides sloping, the edges rather obtuse. Nasal groove extending to near the tip; nostrils basal, linear, pervious. Lower mandible with the angle long and extremely narrow, the dorsal line straight, the sides sloping outwards, the tip a little broader than that of the upper.

Head rather small, oblong, compressed. Neck of moderate length.

Body rather slender. Feet rather long, slender; tibia bare a third part of its length; tarsus compressed behind, covered anteriorly and posteriorly with numerous scutella, which scarcely leave any intermediate space; hind toe extremely small; the rest of moderate length, slender, the fourth slightly longer than the second, the third longest; all free, there being only a very slight rudimentary web between the third and fourth, flat beneath, slightly *marginate* with rather pointed scales. Claws small, slightly arched, *compressed*, rather acute, that of the third toe much larger, with the inner edge dilated.

Plumage very soft, blended on the lower parts, the feathers distinct above. Wings very long, pointed; primaries tapering, obtuse, the first longest, the second almost equal, the rest rapidly graduated: outer secondaries incurved, narrow, obliquely sinuate at the end of the outer web, the inner rounded and extending beyond the outer; inner secondaries very narrow, tapering to a point, reaching, when the wing is closed, to about half an inch from its tip. Tail of moderate length, nearly even, but with the two middle feathers exceeding the rest, the number of feathers twelve.

Bill and feet dusky. Iris brown. The general colour of the upper parts is brownish-black, each feather edged with yellowish-grey, the scapulars with light red. Wing-coverts greyish-brown, the shaft black; primary and secondary coverts tipped with white; quills brownish-grey, darker towards the tips, the inner primaries and outer secondaries more or less edged and tipped with white; the tail-coverts white with a dusky spot, excepting the two central, which are blackish, with a few greyish-white markings. Tail-feathers light grey, the two middle brownish-black towards the end. Sides of the head, fore neck, anterior part of breast and sides greyish-white, with small lanceolate central brownish-black spots; the rest of the lower parts white.

Length to end of tail $7\frac{1}{2}$ inches, to end of wings $7\frac{1}{2}$, to end of claws $7\frac{9}{16}$; extent of wings $14\frac{3}{4}$, bill along the back $1\frac{1}{2}$, along the edge of lower mandible $\frac{1}{4}$; wing from flexure $4\frac{1}{2}$; tail $2\frac{1}{2}$; tarsus $1\frac{1}{2}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$.

Adult Female in winter. Plate CCLXXVIII. Fig. 2.

The Female is similar to the male, but a little smaller.

In some individuals, about six of the middle tail-coverts are black, the lateral barred with white and dusky.

THE SANDWICH TERN.

STERNA CANTIACA, GMEL.

PLATE CCLXXIX. ADULT AND YOUNG.

ON the 26th of May 1832, while sailing along the Florida Keys in Mr THRUSTON's barge, accompanied by his worthy pilot and my assistant, I observed a large flock of Terns, which, from their size and other circumstances, I would have pronounced to be Marsh Terns, had not the difference in their manner of flight convinced me that they were of a species hitherto unknown to me. The pleasure which one feels on such an occasion cannot easily be described, and all that it is necessary for me to say on the subject at present is, that I begged to be rowed to them as quickly as possible. A nod and a wink from the pilot satisfied me that no time should be lost, and in a few minutes all the guns on board were in requisition. The birds fell around us; but as those that had not been injured remained hovering over their dead and dying companions, we continued to shoot until we procured a very considerable number. On examining the first individual picked up from the water, I perceived from the yellow point of its bill that it was different from any that I had previously seen, and accordingly shouted "A prize! a prize! a new bird to the American Fauna!" And so it was, good Reader, for no person before had found the Sandwich Tern on any part of our coast. A large basket was filled with them, and we pursued our course. On opening several individuals, I found in the females eggs nearly ready for being laid. The males, too, manifested the usual symptoms of increased action in the organs distinctive of the sex. I felt a great desire to discover their breeding grounds, which I had the pleasure of doing in a few days after.

The vigour and activity of this bird while on wing afforded me great pleasure. Indeed its power of flight exceeds that of the Marsh Tern, which I consider as a closely allied species. While travelling, it advances by regular sharp flappings of its wings, which propel it forward much in the manner of the Passenger Pigeon, when, single and remote from a flock, it pushes on with redoubled speed. While plunging after the small mullets and other diminutive fishes that form the principal part of its food, it

darts perpendicularly downwards with all the agility and force of the Common and Arctic Terns, nearly immersing its whole body at times, but rising instantly after, and quickly regaining a position from which it can advantageously descend anew. Should the fish disappear, as the bird is descending, the latter instantly recovers itself without plunging into the water. Its cries are sharp, grating, and loud enough to be heard at the distance of half a mile. They are repeated at intervals while it is travelling, and kept up incessantly when one intrudes upon it in its breeding grounds, on which occasion it sails and dashes over your head, chiding you with angry notes more disagreeable than pleasant to your ear.

How many days these birds had been laying, when I discovered the key on which they breed, I cannot say; but many of them were still engaged in depositing their eggs, and none were as yet sitting on those which, being three together, seemed to form the full complement. They had been dropped on the sand, at short intervals, with scarcely any appearance of a hollow for their reception. In some instances they were laid at the foot of a scanty tuft of grass; but all were fully exposed to the heat of the sun, which at this time I thought almost sufficient to cook them. The eggs varied as much in colour as those of the Arctic Tern and Foolish Guillemot, and were equally disproportionate to the size of the bird, their average length being two inches and one-eighth, their greatest breadth one inch and three and a half eighths. They are of an oval form, but rather sharp at the larger end. The ground colour is yellowish-grey, varying in depth, and all more or less spotted, blotched, or marked with different tints of umber, pale blue, and reddish. But to describe them with absolute precision seems to me impossible, and until you see my plates of eggs, I strongly recommend to you to inspect the valuable and accurate delineations published by my friend W. C. HEWITSON, Esq. of Newcastle-upon-Tyne, among which you will find not less than three excellent representations of the eggs of the Sandwich Tern. That gentleman describes them as being "mostly two" for each pair of birds, and "sometimes three," on the islands on the coast of Northumberland, where he found this species breeding in numbers. The eggs were so abundant and close together, that, to use his own words, "we were obliged carefully to pick our steps in order to avoid treading upon them; they were either on the grass as it grew, or upon a small quantity gathered together for that purpose." I add that these eggs are most capital eating.

I never saw the Sandwich Tern on any other portion of our coasts than

between the Florida Keys and Charleston, and from whence it first came there, or how it went thence to Europe, is an enigma which may perhaps never be solved. On asking the Wreckers if they had been in the habit of seeing these birds, they answered in the affirmative, and added that they paid them pretty frequent visits during the breeding season, on account of their eggs as well as of the young, which, when nearly able to fly, they said were also good eating. According to their account, this species spends the whole winter near and upon the keys, and the young keep separate from the old birds.

STERNA CANTIACA, *Gmel. Syst. Nat. Sp.* 15.—*Temm. Man. d'Ornith.* part ii. p. 735.

STERNA BOYSII, *Lath. Ind. Ornith.* vol. ii. p. 806.

SANDWICH TERN, *Nuttall, Manual*, vol. ii. p. 276.

Adult Male. Plate CCLXXIX.

Bill longer than the head, slender, tapering, compressed, nearly straight, very acute. Upper mandible with the dorsal line slightly arched, the ridge rather broad at the base, very narrow towards the tip, the sides sloping at the base, slightly convex and nearly perpendicular towards the end, the edges sharp and inflected, the tip very acute. Nasal groove extending to a little beyond the middle of the bill and deflected towards its edge; nostrils basal, linear, direct, pervious. Lower mandible with the angle very narrow and acute, extending nearly to the middle, the dorsal line beyond it straight, the sides convex, towards the end more erect, the ridge very narrow, the tip extremely acute.

Head of moderate size, oblong; neck of moderate length; body slender. Feet very small; tibia bare for a considerable space; tarsus very short, anteriorly scutellate, laterally and behind reticulated; toes small, slender, the first extremely small, the third longest, the fourth about the same length, the second much shorter, all scutellate above, the anterior connected by reticulated webs of which the margins are deeply concave. Claws arched, compressed, acute, that of hind toe very small, of middle toe by much the largest, and having the inner edge thin and dilated.

Plumage soft, close, blended, very short on the fore part of the head; the feathers on the occiput and upper part of hind neck pointed and elongated. Wings very long, narrow and pointed; primary quills tapering, the outer slightly curved inwards at the end, the first longest, the rest rapidly graduated; secondary short, broad, incurved, rounded, the inner

proportionally longer and narrower. Tail rather long, deeply forked, of twelve feathers, the outer tapering to a point.

Bill black, excepting the tips, which are yellow; inside of the mouth deep blue. Iris brown. Feet black. The upper part of the head, occiput and part of hind neck bluish-black. Sides of the head, neck all round, and the rest of the lower parts white, the breast frequently tinged with pink. The fore part of the back, the scapulars and the upper surface of the wings pale greyish-blue; the tips and the greater parts of the inner webs of the scapulars, and quills white, as are the rump and the tail; the four outer quills blackish, but covered with light grey down, on the outer webs and over a considerable extent of the inner, their shafts white.

Length to end of tail $15\frac{3}{4}$ inches, to end of wings $16\frac{1}{2}$; to end of claws $12\frac{3}{4}$; extent of wings $33\frac{3}{4}$; wing from flexure $12\frac{1}{4}$; tail 6; bill along the back $2\frac{1}{2}$, along the edge of lower mandible $2\frac{1}{2}$; tarsus $1\frac{1}{2}$; middle toe $\frac{9}{16}$, its claw $\frac{5}{16}$. Weight $6\frac{1}{2}$ oz.

The Female is similar to the Male.

The young, after the first moult, are of a light greyish-blue colour on the upper parts, the feathers tipped and banded in an undulating manner with brownish-black; the upper part of the head and the hind neck are of the latter colour, but mottled with white. The quills are as in the adult, the tail grey, with irregular brownish-black markings towards the tips of the feathers. The lower parts are also pale grey, but much lighter than the upper. The bill and feet are black, but the tip of the former has not yet assumed a yellow tint.

THE BLACK TERN.

STERNA NIGRA, LINN.

PLATE CCLXXX. ADULT MALE AND YOUNG.

THE Black Tern begins to arrive from the Mexican territories over the waters of the Western Country, about the middle of April, and continues to pass for about a month. At that season I have observed it ascending the Mississippi from New Orleans to the head waters of the Ohio, then cutting over the land, and arriving at the Great Lakes, beyond which many proceed still farther northward. But I have rarely met with them along our Atlantic shores until autumn, when the young, which, like those of all other Terns with which I am acquainted, mostly keep by themselves until spring, make their appearance there. Nor did I see a single individual when on my way to Labrador, or during my visit to that country. They re-appear in the Western Country, in the course of their southern migration, in the months of September and October ; but many pairs breed in the intermediate range.

When residing at Louisville in Kentucky, I found the Black Tern abundant in the neighbourhood, breeding on the margins of ponds at a short distance from the Ohio. I also found them with nests and eggs on a pond near Vincennes, in the State of Indiana. Now, however, they have abandoned those places, and merely pass over the country on their way to and from the northern regions.

Often have I watched their graceful light and rapid flight, as they advanced and passed over in groups of twenty, thirty or more, from the delightful residence of my worthy friend and kind relative NICHOLAS BERTHOUD, Esq. of Shippingport, during the month of May, when Nature, opening her stores anew, benignly smiled upon the favoured land of Kentucky. The gay birds were seen ranging from the basin at the foot of the rapids to the lower part of the narrow channel which separates Sandy Island from the shore, up the clear stream and down again, plunging at short intervals into the water to seize their prey, and continuing their pleasing occupations through the whole day. When the period of reproduction arrived, they would all betake themselves to the ponds, and search along their moist shores for tufts of rank grass such as might form

suitable places for their nests. One of their favourite ponds still remains in part, although a great portion of it has been drained. It is now known by the name of Hope Distillery Pond, and lies a few hundred yards from the Ohio, but is nearly surrounded with buildings of various kinds. ALEXANDER WILSON, to whom I shewed the old nests of the Black Tern at this place, did not seem to be acquainted with the bird, and thought that they were those of some species of Rail.

The nest is usually placed on the top of a broken tussock of the rankest grasses, of which it is itself composed, it being of a flattish form, and about two inches thick. It is enlarged or renewed every year, some nests being found to be from four to six inches in height. In some instances the water surrounds the foot of the tussock on which it is placed. They begin to lay on the first days of June. The eggs, of which the full number is four, greatly resemble in colour those of the Sandwich and Arctic Terns. When disturbed at this season, these birds are as noisy as any of the tribe; but they remain close over the place, and go to the river only at intervals to procure food. *Both sexes incubate by turns, and the eggs are kept constantly covered. They average in length one inch and three-eighths by one inch across, and are nearly of an elliptical form, being but slightly pointed at one end; their ground colour is greenish-buff, spotted and dashed with reddish umber and black, more abundantly toward the middle. I took the trouble of counting the number of nests round the pond, and found it more than seventy. About the middle of August the young fly well, and are able to seek food for themselves. I have seen the parent birds feed them on wing in the manner of swallows.

They alight less frequently on the water than the larger species. On shore they walk like swallows. During autumn they hunt for food over the wet prairies, passing low, and picking up the insects as they proceed without alighting. At this season, both old and young have become more silent. They are at all times less shy than most others of the tribe. Their principal food consists of aquatic insects and small fry, and their flesh is tolerably good.

Since I wrote the above notice, I have been informed by my youngest son that this species was still seen about the Falls of the Ohio, in considerable numbers, a few years ago; but that, although he observed them there in spring, summer, and early autumn, he did not discover their breeding grounds, which are perhaps now farther inland than formerly.

BLACK TERN.

STERNA NIGRA, Linn. Syst. Nat. vol. i. p. 237.—*Lath. Ind. Ornith.* vol. ii. p. 810.—

Ch. Bonaparte, *Synopsis of Birds of the United States*, p. 355.

SHORT-TAILED TERN, *STERNA FLUMBEA*, *Wils. Amer. Ornith.* vol. vi. p. 83. pl. 60.
fig. 3. Young. ;

STERNA NIGRA, BLACK TERN, *Swinns. and Richards, Fauna Bor. Amer.* part ii. p. 415.

BLACK TERN, OR STERN, *Nuttall, Manual*, vol. ii. p. 282.

Adult Male. Plate CCLXXX. Fig. 1.

Bill about the same length as the head, slender, tapering, compressed, nearly straight, very acute. Upper mandible with the dorsal line slightly arched, the ridge convex at the base, narrowed towards the end, the sides sloping at the base, slightly convex and nearly perpendicular towards the tip, the edges sharp, the tip acute. Nasal groove reaching nearly to the middle of the mandible; nostrils basal, linear, direct, pervious. Lower mandible with the angle very narrow, acute, extending beyond the middle, the dorsal line straight, the sides erect and slightly convex, the edges sharp and slightly inflected, the tip extremely acute.

Head of moderate size, oblong; neck rather short; body slender. Feet small; tibia bare for a short space; tarsus very short, covered anteriorly with small scutella, laterally and behind with reticular scales; toes very slender, the first extremely small, the third longest, the fourth nearly as long, the second much shorter, all scutellate above, the anterior connected by short reticulate webs, having a concave margin, and not extending much beyond the middle of the toes. Claws long, slender, arched, compressed, acute, that of hind toe smallest, of middle toe largest, and having a thin dilated inner edge.

Plumage soft, close, blended, on the head short, on the back somewhat compact. Wings very long, narrow and pointed; primary quills tapering, the outer slightly curved inwards at the end, the first longest, the rest rapidly graduated; secondary short, broad, incurved, rounded. Tail of moderate length, emarginate, of twelve rounded feathers.

Bill brownish-black. Iris brown. Feet reddish-brown, claws black. Head, neck, breast, sides and abdomen, greyish-black; lower tail-coverts white, lower wing-coverts bluish-grey. The general colour of the upper parts is dark bluish-grey; the outer web of the first quill greyish-black.

Length to end of tail 9 inches, to end of wings 11; extent of wings 24; wing from flexure $8\frac{2}{3}$; tail $3\frac{1}{3}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $\frac{5}{8}$; middle toe $\frac{5}{8}$, its claw $\frac{1}{2}$. Weight 3 oz.

Young Male in Autumn. Plate CCLXXX.

The bill, iris, and feet nearly as in the adult. The upper parts are greyish-blue, the feathers of the fore-part of the back, and especially the scapulars, brown towards the end; the upper and hind part of the head greyish-black, of which there is a darker mark behind, and another before the eye; the forehead greyish-white, as are the sides of the head, the fore neck, the breast, and the abdomen; the sides dusky grey; the lower wing-coverts greyish-white. The quills are darker towards the end, and the first primary is black along the outer web.

Length to end of tail $7\frac{3}{4}$ inches, to end of wings $9\frac{8}{17}$; wing from flexure $7\frac{3}{4}$; tail $2\frac{1}{2}$; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $1\frac{8}{17}$; tarsus $1\frac{1}{2}$; middle toe $\frac{8}{17}$, its claw $\frac{5}{17}$.

NATCHEZ IN 1820.

ONE clear frosty morning in December I approached in my flat-boat the City of Natchez. The shores were crowded with boats of various kinds, laden with the produce of the western country; and there was a bustle about them, such as you might see at a general fair, each person being intent on securing the advantage of a good market. Yet the scene was far from being altogether pleasing, for I was yet "under the hill;" but on removing from the lower town, I beheld the cliffs on which the city, properly so called, has been built. Vultures unnumbered flew close along the ground on expanded pinions, searching for food; large pines and superb magnolias here and there raised their evergreen tops toward the skies; while on the opposite shores of the Mississippi, vast alluvial beds stretched along, and the view terminated with the dense forest. Steamers moved rapidly on the broad waters of the great stream; the sunbeams fell with a peculiarly pleasant effect on the distant objects; and as I watched the motions of the White-headed Eagle while pursuing the Fishing Hawk, I thought of the wonderful ways of that Power to whom I too owe my existence.

Before reaching the land I had observed that several saw-mills were placed on ditches or narrow canals, along which the water rushed from the inner swamps towards the river, and by which the timber is conveyed to the shore; and on inquiring afterwards, I found that one of those temporary establishments had produced a net profit of upwards of six thousand dollars in a single season.

There is much romantic scenery about Natchez. The Lower Town forms a most remarkable contrast with the Upper, for in the former the houses were not regularly built, being generally dwellings formed of the abandoned flat boats, placed in rows as if with the view of forming a long street. The inhabitants formed a medley which it is beyond my power to describe; hundreds of laden carts and other vehicles jogged along the declivity between the two towns; but when, by a very rude causeway, I gained the summit, I was relieved by the sight of an avenue of those beautiful trees called here the Pride of China. In the Upper Town I found the streets all laid off at right angles to each other, and tolerably well lined with buildings, constructed with painted bricks or boards.

The agricultural richness of the surrounding country was shewn by the heaps of cotton bales and other produce that encumbered the streets. The churches, however, did not please me ; but as if to make up for this, I found myself unexpectedly accosted by my relative Mr BERTHOUD, who presented me with letters from my wife and sons. These circumstances put me in high spirits, and we proceeded towards the best hotel in the place, that of Mr GARNIER. The house, which was built on the Spanish plan, and of great size, was surrounded by large virandas overlooking a fine garden, and stood at a considerable distance from any other. At this period the City of Natchez had a population not exceeding three thousand individuals. I have not visited it often since, but I have no doubt that, like all the other towns in the western district of our country, it has greatly increased. It possessed a bank, and the mail arrived there thrice in the week from all parts of the Union.

The first circumstance that strikes a stranger is the mildness of the temperature. Several vegetables as pleasing to the eye as agreeable to the palate, and which are seldom seen in our eastern markets before May, were here already in perfection. The Pewee Fly-catcher had chosen the neighbourhood of the city for its winter quarters, and our deservedly famed Mocking Bird sang and danced gratis to every passer by. I was surprised to see the immense number of Vultures that strode along the streets, or slumbered on the roofs. The country for many miles inland is gently undulated. Cotton is produced abundantly, and wealth and happiness have taken up their abode under most of the planter's roofs, beneath which the wearied traveller or the poor wanderer in search of a resting place, is sure to meet with comfort and relief. Game is abundant, and the free Indians were wont in those days to furnish the markets with ample supplies of venison and Wild Turkey. The Mississippi, which bathes the foot of the hill, some hundred feet below the town, supplies the inhabitants with fish of various kinds. The greatest deficiency is that of water, which for common purposes is dragged on sledges or wheels from the river, while that used for drinking is collected in tanks from the roofs, and becomes very scarce during protracted droughts. Until of late years, the orange-tree bore fruit in the open air ; but owing to the great change that has taken place in the temperature, severe though transient frosts occasionally occur, which now prevent this plant from coming to perfection in the open air.

The remains of an old Spanish Fort are still to be seen at a short dis-

tance from the city. If I am correctly informed, about two years previous to this visit of mine, a large portion of the hill near it gave way, sank about a hundred feet, and carried many of the houses of the lower town into the river. This, it would appear, was occasioned by the quicksand running springs that flow beneath the strata of mixed pebbles and clay, of which the hill is composed. The part that has subsided presents the appearance of a basin or bowl, and is used as a depot for the refuse of the town, on which the Vultures feed when they can get nothing better. There it was that I saw a White-headed Eagle chase one of those filthy birds, knock it down, and feast on the entrails of a horse, which the Carrion Crow had partly swallowed.

I did not meet at Natchez with many individuals fond of Ornithological pursuits, but the hospitality with which I was received was such as I am not likely to forget. Mr GARNIER subsequently proved an excellent friend to me, as you may find elsewhere recorded. Of another individual, whose kindness towards me is indelibly impressed on my heart, I would say a few words, although he was such a man as FENELON alone could describe. CHARLES CARRE' was of French origin, the son of a nobleman of the old regime. His acquirements and the benevolence of his disposition were such, that when I first met with him, I could not help looking upon him as another MENTOR. Although his few remaining locks were grey, his countenance still expressed the gaiety and buoyant feelings of youth. He had the best religious principles; for his heart and his purse were ever open to the poor. Under his guidance it was that I visited the whole neighbourhood of Natchez; for he was acquainted with all its history, from the period at which it had first come under the power of the Spaniards to that of their expulsion from the country, its possession by the French, and subsequently by ourselves. He was also well versed in the Indian languages, spoke French with the greatest purity, and was a religious poet. Many a pleasant hour have I spent in his company; but alas! he has gone the way of all the earth!

THE GREAT WHITE HERON.

ARDEA OCCIDENTALIS.

PLATE CCLXXXI.

I AM now about to present you with an account of the habits of the largest species of the Heron tribe hitherto found in the United States, and which is indeed remarkable not only for its great size, but also for the pure white of its plumage at every period of its life. Writers who have subdivided the family, and stated that none of the True Herons are white, will doubtless be startled when they, for the first time, look at my plate of this bird. I think, however, that our endeavours to discover the natural arrangement of things cannot be uniformly successful, and it is clear that he only who has studied *all* can have much chance of disposing all according to their relations.

On the 24th of April 1832, I landed on Indian Key in Florida, and immediately after formed an acquaintance with Mr EGAN, of whom I have already several times spoken. He it was who first gave me notice of the species which forms the subject of this article, and of which I cannot find any description. The next day after that of my arrival, when I was prevented from accompanying him by my anxiety to finish a drawing, he came in with two young birds alive, and another lying dead in a nest, which he had cut off from a mangrove. You may imagine how delighted I was, when at the very first glance I felt assured that they were different from any that I had previously seen. The two living birds were of a beautiful white, slightly tinged with cream-colour, remarkably fat and strong for their age, which the worthy Pilot said could not be more than three weeks. The dead bird was quite putrid and much smaller. It looked as if it had accidentally been trampled to death by the parent birds ten or twelve days before, the body being almost flat and covered with filth. The nest with the two live birds was placed in the yard. The young Herons seemed quite unconcerned when a person approached them, although on displaying one's hand to them, they at once endeavoured to strike it with their bill. My Newfoundland dog, a well-trained and most sagacious animal, was whistled for and came

up ; on which the birds rose partially on their legs, ruffled all their feathers, spread their wings, opened their bills, and clicked their mandibles in great anger, but without attempting to leave the nest. I ordered the dog to go near them, but not to hurt them. They waited until he went within striking distance, when the largest suddenly hit him with its bill, and hung to his nose. Plato, however, took it all in good part, and merely brought the bird towards me, when I seized it by the wings, which made it let go its hold. It walked off as proudly as any of its tribe, and I was delighted to find it possessed of so much courage. These birds were left under the charge of Mrs EGAN, until I returned from my various excursions to the different islands along the coast.

On the 26th of the same month, Mr THURSTON took me and my companions in his beautiful barge to some keys on which the Florida Cormorants were breeding in great numbers. As we were on the way we observed two tall white Herons standing on their nests ; but although I was anxious to procure them alive, an unfortunate shot from one of the party brought them to the water. They were, I was told, able to fly, but probably had never seen a man before. While searching that day for nests of the Zenaida Dove, we observed a young Heron of this species stalking among the mangroves that bordered the key on which we were, and immediately pursued it. Had you been looking on, good Reader, you might have enjoyed a hearty laugh, although few of us could have joined you. Seven or eight persons were engaged in the pursuit of this single bird, which, with extended neck, wings, and legs, made off among the tangled trees at such a rate, that, anxious as I was to obtain it alive, I several times thought of shooting it. At length, however, it was caught, its bill was securely tied, its legs were drawn up, and fastened by a strong cord, and the poor thing was thus conveyed to Indian Key, and placed along with its kinsfolk. On seeing it, the latter immediately ran towards it with open bills, and greeted it with a most friendly welcome, passing their heads over and under its own in the most curious and indeed ludicrous manner. A bucketful of fish was thrown to them, which they swallowed in a few minutes. After a few days, they also ate pieces of pork-rhind, cheese, and other substances.

While sailing along the numerous islands that occur between Indian Key and Key West, I saw many birds of this species, some in pairs, some single, and others in flocks ; but on no occasion did I succeed in getting within shot of one. Mr EGAN consoled me by saying that he knew some

places beyond Key West where I certainly should obtain several, were we to spend a day and a night there for the purpose. Dr BENJAMIN STROBEL afterwards gave me a similar assurance. In the course of a week after reaching Key West, I in fact procured more than a dozen birds of different ages, as well as nests and eggs, and their habits were carefully examined by several of my party.

At three o'clock one morning, you might have seen Mr EGAN and myself, about eight miles from our harbour, paddling as silently as possible over some narrow and tortuous inlets, formed by the tides through a large flat and partially submersed key. There we expected to find many White Herons; but our labour was for a long time almost hopeless, for, although other birds occurred, we had determined to shoot nothing but the Great White Heron, and none of that species came near us. At length, after six or seven hours of hard labour, a Heron flew right over our heads, and to make sure of it, we both fired at once. The bird came down dead. It proved to be a female, which had either been sitting on her eggs or had lately hatched her young, her belly being bare, and her plumage considerably worn. We now rested a while, and breakfasted on some biscuit soaked in molasses and water, reposing under the shade of the mangroves, where the mosquitoes had a good opportunity of breaking their fast also. We went about from one key to another, saw a great number of White Herons, and at length, towards night, reached the Marion, rather exhausted, and having a solitary bird. Mr EGAN and I had been most of the time devising schemes for procuring others with less trouble, a task which might easily have been accomplished a month before, when, as he said, the birds were "sitting hard." He asked if I would return that night at twelve o'clock to the last key which we had visited. I mentioned the proposal to our worthy Captain, who, ever willing to do all in his power to oblige me, when the service did not require constant attendance on board, said that if I would go, he would accompany us in the gig. Our guns were soon cleaned, provisions and ammunition placed in the boats, and after supping we talked and laughed until the appointed time.

"Eight Bells" made us bound on our feet, and off we pushed for the islands. The moon shone bright in the clear sky; but as the breeze had died away, we betook ourselves to our oars. The state of the tide was against us, and we had to drag our boats several miles over the soapy shallows; but at last we found ourselves in a deep channel beneath the

hanging mangroves of a large key, where we had observed the Herons retiring to roost the previous evening. There we lay quietly until day-break. But the mosquitoes and sandflies ! Reader, if you have not been in such a place, you cannot easily conceive the torments we endured for a whole hour, when it was absolutely necessary for us to remain perfectly motionless. At length day dawned, and the boats parted, to meet on the other side of the key. Slowly and silently each advanced. A Heron sprung from its perch almost directly over our heads. Three barrels were discharged,—in vain ; the bird flew on unscathed ; the pilot and I had probably been too anxious. As the bird sped away, it croaked loudly, and the noise, together with the report of our guns, roused some hundreds of these Herons, which flew from the mangroves, and in the grey light appeared to sail over and around us like so many spectres. I almost despaired of procuring any more. The tide was now rising, and when we met with the other boat we were told, that if we had waited until we could have shot at them while perched, we might have killed several ; but that now we must remain until full tide, for the birds had gone to their feeding grounds.

The boats parted again, and it was now arranged that whenever a Heron was killed, another shot should be fired exactly one minute after, by which each party would be made aware of the success of the other. Mr EGAN, pointing to a nest on which stood two small young birds, desired to be landed near it. I proceeded into a narrow bayou, where we remained quiet for about half an hour, when a Heron flew over us and was shot. It was a very fine old male. Before firing my signal shot, I heard a report from afar, and a little after mine was discharged I heard another shot, so I felt assured that two birds had been killed. When I reached the Captain's boat I found that he had in fact obtained two ; but Mr EGAN had waited two hours in vain near the nest, for none of the old birds came up. We took him from his hiding place, and brought the Herons along with us. It was now nearly high water. About a mile from us, more than a hundred Herons stood on a mud-bar up to their bellies. The pilot said that now was our best chance, as the tide would soon force them to fly, when they would come to rest on the trees. So we divided, each choosing his own place, and I went to the lowest end of the key, where it was separated from another by a channel. I soon had the pleasure of observing all the Herons take to wing, one after another, in quick succession. I then heard my companions' guns, but no signal of success. Ob-

taining a good chance as I thought, I fired at a remarkably large bird, and distinctly heard the shot strike it. The Heron merely croaked, and pursued its course. Not another bird came near enough to be shot at, although many had alighted on the neighbouring key, and stood perched like so many newly finished statues of the purest alabaster, forming a fine contrast to the deep blue sky. The boats joined us. Mr EGAN had one bird, the Captain another, and both looked at me with surprise. We now started for the next key, where we expected to see more. When we had advanced several hundred yards along its low banks, we found the bird at which I had shot lying with extended wings in the agonies of death. It was from this specimen that the drawing was made. I was satisfied with the fruits of this day's excursion. On other occasions I procured fifteen more birds, and judging that number sufficient, I left the Herons to their occupations.

This species is extremely shy. Sometimes they would rise when at the distance of half a mile from us, and fly quite out of sight. If pursued, they would return to the very keys or mud-flats from which they had risen, and it was almost impossible to approach one while perched or standing in the water. Indeed, I have no doubt that half a dozen specimens of *Ardea Herodias* could be procured for one of the present, in the same time and under similar circumstances.

The Great White Heron is a constant resident on the Florida Keys, where it is found more abundant during the breeding season than anywhere else. They rarely go as far eastward as Cape Florida, and are not seen on the Tortugas, probably because these islands are destitute of mangroves. They begin to pair early in March, but many do not lay their eggs until the middle of April. Their courtships were represented to me as similar to those of the Great Blue Heron. Their nests are at times met with at considerable distances from each other, and although many are found on the same keys, they are placed farther apart than those of the species just mentioned. They are seldom more than a few feet above high water-mark, which in the Floridas is so low, that they look as if only a yard or two above the roots of the trees. From twenty to thirty nests which I examined were thus placed. They were large, about three feet in diameter, formed of sticks of different sizes, but without any appearance of lining, and quite flat, being several inches thick. The eggs are always three, measure two inches and three quarters in length, one inch and eight-twelfths in breadth, and have a rather thick shell, of a uniform

plain light bluish-green colour. Mr EGAN told me that incubation continues about thirty days, that both birds sit, (the female, however, being most assiduous,) and with their legs stretched out before them, in the same manner as the young when two or three weeks old. The latter, of which I saw several from ten days to a month old, were pure white, slightly tinged with cream colour, and had no indications of a crest. Those which I carried to Charleston, and which were kept for more than a year, exhibited nothing of the kind. I am unable to say how long it is before they attain their full plumage as represented in the plate, when, as you see, the head is broadly but loosely and shortly tufted, the feathers of the breast pendent, but not remarkably long, and there are none of the narrow feathers seen in other species over the rump or wings.

These Herons are sedate, quiet, and perhaps even less animated than the *A. Herodias*. They walk majestically, with firmness and great elegance. Unlike the species just named, they *flock* at their feeding grounds, sometimes a hundred or more being seen together; and what is still more remarkable is, that they betake themselves to the mud-flats or sand-bars at a distance from the Keys on which they roost and breed. They seem, in so far as I could judge, to be diurnal, an opinion corroborated by the testimony of Mr EGAN, a person of great judgment, sagacity and integrity. While on these banks, they stand motionless, rarely moving towards their prey, but waiting until it comes near, when they strike it and swallow it alive, or when large beat it on the water, or shake it violently, biting it severely all the while. They never leave their feeding grounds until driven off by the tide, remaining until the water reaches their body. So wary are they, that although they may return to roost on the same keys, they rarely alight on trees to which they have resorted before, and if repeatedly disturbed they do not return, for many weeks at least. When roosting, they generally stand on one foot, the other being drawn up, and, unlike the Ibises, are never seen lying flat on trees, where, however, they draw in their long neck, and place their head under their wing.

I was often surprised to see that while a flock was resting by day in the position just described, one or more stood with outstretched necks, keenly eyeing all around, now and then suddenly starting at the sight of a Porpoise or Shark in chase of some fish. The appearance of a man or a boat, seemed to distract them; and yet I was told that nobody ever

goes in pursuit of them. If surprised, they leave their perch with a rough croaking sound, and fly directly to a great distance, but never inland.

The flight of the Great White Heron is firm, regular, and greatly protracted. They propel themselves by regular slow flaps, the head being drawn in after they have proceeded a few yards, and their legs extended behind, as is the case with all other Herons. They also now and then rise high in the air, where they sail in wide circles, and they never alight without performing this circling flight, unless when going to feeding grounds on which other individuals have already settled. It is truly surprising that a bird of so powerful a flight never visits Georgia or the Carolinas, nor goes to the Mainland. When you see them about the middle of the day on their feeding grounds they "loom" to about double their size, and present a singular appearance. It is difficult to kill them unless with buck-shot, which we found ourselves obliged to use.

When I left Key West, on our return towards Charleston, I took with me two young birds that had been consigned to the care of my friend Dr B. STROBEL, who assured me that they devoured more than their weight of food per day. I had also two young birds of the *Ardea Herodias* alive. After bringing them on board, I placed them all together in a very large coop; but was soon obliged to separate the two species, for the white birds would not be reconciled to the blue, which they would have killed. While the former had the privilege of the deck for a few minutes, they struck at the smaller species, such as the young of *Ardea rufescens* and *A. Ludoviciana*, some of which they instantly killed and swallowed entire, although they were abundantly fed on the flesh of green Turtles. None of the sailors succeeded in making friends with them.

On reaching Indian Key, I found those which had been left with Mrs EGAN, in excellent health and much increased in size, but to my surprise observed that their bills were much broken, which she assured me had been caused by the great force with which they struck at the fishes thrown to them on the rocks of their enclosure,—a statement which I found confirmed by my own observation in the course of the day. It was almost as difficult to catch them in the yard, as if they had never seen a man before, and we were obliged to tie their bills fast, to avoid being wounded by them while carrying them on board. They thrived well, and never manifested the least animosity towards each other. One of them which accidentally walked before the coop in which the Blue Herons were,

thrust its bill between the bars, and transfixed the head of one of these birds, so that it was instantaneously killed.

When we arrived at Charleston, four of them were still alive. They were taken to my friend JOHN BACHMAN, who was glad to see them. He kept a pair, and offered the other to our mutual friend Dr SAMUEL WILSON, who accepted them, but soon afterwards gave them to Dr GIBBES of Columbia College, merely because they had killed a number of Ducks. My friend BACHMAN kept two of these birds for many months; but it was difficult for him to procure fish enough for them, as they swallowed a bucketful of mullets in a few minutes, each devouring about a gallon of these fishes. They betook themselves to roosting in a beautiful arbour in his garden; where at night they looked with their pure white plumage like beings of another world. It is a curious fact, that the points of their bills, of which an inch at least had been broken, grew again, and were as regularly shaped at the end of six months as if nothing had happened to them. In the evening or early in the morning, they would frequently set, like pointer dogs, at moths which hovered over the flowers, and with a well-directed stroke of their bill seize the fluttering insect and instantly swallow it. On many occasions, they also struck at chickens, grown fowls and ducks, which they would tear up and devour. Once a cat which was asleep in the sunshine, on the wooden steps of the viranda, was pinned through the body to the boards, and killed by one of them. At last they began to pursue the younger children of my worthy friend, who therefore ordered them to be killed. One of them was beautifully mounted by my assistant Mr HENRY WARD, and is now in the Museum of Charleston. Dr GIBBES was obliged to treat his in the same manner; and I afterwards saw one of them in his collection. Of the fifteen skins of this species which I carried to Philadelphia, one was presented to the Academy of Natural Sciences of that beautiful city, another was given in exchange for various skins, and two I believe are now in the possession of GEORGE COOPER, Esq. of New York. Two were sent along with other specimens to Mr SELBY of Twizel House, Northumberland. On my arrival in England, I presented a pair to His Royal Highness the Duke of Sussex, who gave them to the British Museum, where I have since seen them mounted. I also presented a specimen to the Zoological Society of London.

Mr EGAN kept for about a year one of these birds, which he raised

from the nest, and which, when well grown, was allowed to ramble along the shores of Indian Key in quest of food. One of the wings had been cut, and the bird was known to all the resident inhabitants, but was at last shot by some Indian Hunter, who had gone there to dispose of a collection of sea shells.

Some of the Herons feed on the berries of certain trees during the latter part of autumn and the beginning of winter. Dr B. B. STROBEL observed the Night Heron eating those of the "Gobolimbo," late in September at Key West.

Among the varied and contradictory descriptions of Herons, you will find it alleged that these birds seize fish while on wing by plunging the head and neck into the water ; but this seems to me extremely doubtful. Nor, I believe, do they watch for their prey while perched on trees. Another opinion is, that Herons are always thin, and unfit for food. This, however, is by no means generally the case in America, and I have thought these birds very good eating when not too old.

GREAT WHITE HERON, *ARDEA OCCIDENTALIS*.

Adult Male. Plate CCLXXXI.

Bill much longer than the head, straight, compressed, tapering to a point, the mandibles nearly equal, but the point of the upper considerably extended beyond that of the lower. Upper mandible with the dorsal line nearly straight, the ridge broadly convex at the base, convex and narrowed towards the end, a groove from the base to near the tip, beneath which the sides are convex, the edges extremely thin and sharp, towards the end broken into irregular serratures, the tip acute. Lower mandible with the angle extremely narrow and elongated, the dorsal line beyond it ascending and slightly curved, the ridge convex, the sides ascending and slightly concave, the edges as in the upper, the tip acuminate. Nostrils basal, linear-oblong, longitudinal, with a membrane above and behind.

Head of moderate size, oblong, compressed. Neck extremely long, slender. Body slender and compressed ; wings large. Feet very long ; tibia elongated, its lower half bare, very slender, covered all round with large elongated hexagonal scales ; tarsus long, thicker than the lower part of the tibia, compressed, covered anteriorly with large scutella, excepting

at the two extremities where there are large angular scales. Toes of moderate length, rather slender, scutellate above, flattened, and reticularly granulate beneath, the thick margins covered with small scales, the sides with larger; the third and fourth toes connected at the base by a reticulated web; the third toe much longer than the fourth, which is considerably longer than the second, the first about half the length of the third; claws of moderate size, strong, compressed, curved, obtuse, the first largest, the third next in size, and with an inner regularly pectinated edge, all more or less convex beneath.

Space between the bill and eye, and around the latter, as well as at the angle of the mouth bare, as is the lower half of the tibia. Plumage soft, the edges of the feathers loose and blended. Feathers of the upper part of the head and hind neck elongated and tapering; of the back long and loose, of the rump soft and downy; scapulars very long, rather compact, the upper loose. Feathers of the fore neck elongated, of the sides of the breast anteriorly very long, loose and tapering; of the rest of the lower parts broader but pointed; of the tibia shortish. Wings large, rounded; primaries curved, strong, broad, tapering, the three first slightly sinuate on the inner web; third quill longest, fourth scarcely shorter, third almost as long as fourth, first a quarter of an inch shorter; secondaries very large, broad and rounded, the inner extending as far as the longest primary when the wing is closed. Tail short, slightly rounded, of twelve broad, rounded feathers.

Bill yellow, the upper mandible dusky green at its base; loreal space yellowish-green; orbital space light blue. Iris bright yellow. Tibia and hind part of tarsus yellow; fore part of tibia and toes olivaceous, sides of the latter greenish-yellow; claws light brown. The whole of the plumage is pure white.

Length to end of tail 54 inches, to end of wings 54, to end of claws 70; extent of wings 83; wing from flexure 19; tail 7; bill along the back $6\frac{3}{4}$, along the edges $8\frac{3}{4}$; bare part of tibia 6; tarsus $8\frac{1}{2}$; middle toe $4\frac{1}{2}$, its claw $\frac{1}{2}$. Weight $9\frac{1}{2}$ lb.

The Female is smaller, but similar to the male. The dimensions of an individual were as follows.

Length to end of tail 50, to end of wings 50, to end of claws 65; extent of wings 75; wing from flexure $18\frac{3}{4}$; tail $6\frac{3}{4}$; bill along the back $5\frac{1}{2}$, along the edges $7\frac{3}{4}$, its depth at base $1\frac{5}{8}$; tarsus $7\frac{1}{2}$; middle toe $4\frac{1}{4}$, its claw $\frac{1}{2}$. Weight $7\frac{1}{4}$ lb.

The Young are at first covered with white down, and when fledged are of the same colour. An individual just able to fly was of the following dimensions.

Length to end of tail $43\frac{1}{2}$, to end of claws 56; wing from flexure 18; bill $5\frac{4}{11}$; along the edge $7\frac{1}{4}$; tarsus $6\frac{1}{2}$; middle toe $4\frac{1}{4}$, its claw $\frac{3}{4}$. The serrature of the middle claw is distinct at this age. •

In this species, the skin is uncommonly tender, and of a yellow colour.

THE WHITE-WINGED SILVERY GULL.

LARUS LEUCOPTERUS, FABER.

PLATE CCLXXXII. ADULT MALE, AND YOUNG.

I HAVE not met with this species farther south than the Bay of New York. During the winter it is not rare about Boston and farther eastward. At the approach of summer, before the pairing of the Herring Gull, *Larus argentatus*, the White-winged Gulls collect in flocks, and set out for the distant north, where they breed.

The flight of this species so much resembles that of the Herring Gull, that were it not for its smaller size, and the different colour of its wings, it could not be distinguished from the other. It is less shy, however, proceeds farther up the rivers and salt-water creeks, and alights oftener on the water as well as on the salt-meadows, than that species. While at Portland in Maine, I observed a good number of these Gulls flying over the inner harbour close to the shores, descending towards the water, and picking up garbage in the manner of the Herring Gulls, with which they associated. Their notes were not so loud, nor so often heard.

I was surprised to find but very few on the coast of Labrador, and these did not seem to be breeding, for although we carefully watched them, we did not succeed in finding any nests.

LARUS LEUCOPTERUS, Ch. Bonaparte, Synops. of Birds of the United States, p. 361.

LARUS LEUCOPTERUS, WHITE-WINGED SILVERY GULL, Swains. and Richards. Fauna Bor. Amer. part ii. p. 418.

LARUS ARCTICUS, Macgillivray, Wern. Trans. vol. v. p. 268.

WHITE-WINGED SILVERY GULL, Nuttall, Manual, vol. ii. p. 305.

Adult Male. Plate CCLXXXII. Fig. 1.

Bill shorter than the head, strong, nearly straight, compressed. Upper mandible with the dorsal line nearly straight at the base, arched and declinate towards the end, the ridge convex, the sides slightly convex, the edges sharp, nearly direct, the tip rather obtuse. Nasal groove rather long and narrow; nostril in its fore part, lateral, longitudinal, linear, wider anteriorly, open and pervious. Lower mandible with a prominence

at the end of the angle, which is long and narrow, the dorsal line then nearly straight and ascending, the sides flat and slightly inclined, the edges sharp and inflected.

Head rather large. Neck of moderate length. Body rather full. Wings very long. Feet of moderate length, rather slender; tibia bare below; tarsus somewhat compressed, covered before with numerous broad scutella, laterally and behind with roundish scales, on the outer side also with a row of small scutella; toes of moderate length, rather slender, all covered above with scutella; the anterior connected by reticulated webs, the two lateral with an external thick margin; the first extremely small, the third longest, the fourth longer than second; claw of hind toe smallest, of third largest, with an inner thin edge, of second next in size, all more or less compressed and obtuse.

The plumage in general is close, elastic, very soft and blended, on the back rather compact. Wing very long, broad, pointed; primaries tapering, the first longest, the second slightly shorter, the rest rapidly graduated; secondaries broad and rounded, the inner elongated and rather narrow. Tail of moderate length, even, of twelve broad feathers.

Bill gamboge-yellow, with a spot of orange-red near the end of lower mandible; the angle of the mouth and the edges of the eyelids are also orange-red. Iris pale yellow. Feet pale flesh-colour; claws greyish-brown. The whole plumage is pure white, excepting the back and upper surface of wings; the tips of the secondaries, the terminal third or so of the primaries, their shafts, and the upper tail-coverts also white.

Length to end of tail 26 inches, to end of wings $28\frac{1}{2}$; extent of wings 50; bill along the back $1\frac{3}{4}$, along the edges $2\frac{1}{2}$; tarsus $2\frac{1}{2}$, middle toe $2\frac{1}{4}$, its claw $\frac{4}{11}$; wing from flexure $17\frac{1}{2}$; tail $6\frac{1}{2}$.

Young in winter. Plate CCLXXXII. Fig. 2.

Bill yellow, the tips black. Edges of eyelids pale reddish-orange; iris brown. Feet yellowish flesh colour; claws greyish-brown. The plumage is yellowish-grey, marked on the head and neck with longitudinal streaks of pale brown, on the back and wings with transverse undulations, those on the tail much fainter; the first six quills destitute of markings.

THE WANDERING SHEARWATER.

PUFFINUS CINEREUS, Cuv.

PLATE CCLXXXIII. MALE.

I HAVE found this species ranging from the Gulf of St Lawrence to that of Mexico, but have very seldom seen it near the coast. While sailing round Nova Scotia, on my way to Labrador, early in June, I observed one evening about sunset, a great number flying from the rocky shores, which induced me to think that they bred there. Scarcely one was to be seen during the day, and this circumstance strengthened my opinion, as I was aware that these birds are in the habit of remaining about their nests at that time. In September the case is very different; for they are then seen far out at sea, at all hours by day and through the night.

In calm weather, they are fond of alighting on the water, in company with the Fulmars, and are then easily approached. They swim buoyantly, and have a graceful appearance while playing among themselves. Two that had been caught with hooks, walked as well as Ducks, and made no pretence of sitting on their rumps, as some writers have said they do. On being approached, they opened their bills, raised their feathers, and squirted an oily substance through their nostrils, which they continued to do when held in the hand, at the same time scratching with their sharp claws and bills. They refused all sorts of food; and as they were unpleasant pets, they were set at liberty. To my great surprise, instead of flying directly off, as I expected, they launched toward the water, dived several yards obliquely, and on coming to the surface, splashed and washed themselves for several minutes before they took to wing, when they flew away with their usual ease and grace.

The flight of this wanderer of the ocean is extremely rapid and protracted. When it blows hard, it skims along the troughs of the waves on extended wings in large curves, shewing its upper and lower parts alternately, evidently with the view of being aided by the wind. In calm weather its flight is much lower and less rapid, and it rarely throws its body sideways, but seems to feed more abundantly than during boisterous weather. Like the small Petrels, it frequently uses its feet to sup-

port itself on the surface, without actually alighting. In the stomach of those which I opened, I found fishes, portions of crabs, sea-weeds, and oily substances. It does not appear that this species goes far north, as was formerly supposed; for none of the late northern voyagers mention having seen it, although they found the Fulmar abundant

PUFFINUS CINEREUS, *Ch. Bonaparte*, Synopsis of Birds of the United States, p. 370.

PROCELLARIA CINEREA, *Lath.* Ind. Ornith. vol. ii. p. 10.

CINEREOUS PUFFIN, *Nuttall*, Manual, p. 334.

Adult Male. Plate CCLXXXIII.

Bill about the same length as the head, rather slender, nearly as deep as broad at the base, compressed towards the end, slightly curved upwards, with the tips decurved. Upper mandible with a cere at the base extending narrow to the nostrils, which are placed above, each covered with a lateral convex plate, and open anteriorly, with an elliptical aperture; the dorsal line as far as the nostrils nearly straight, then suddenly deflected, after which it is slightly concave, but towards the tip incurved, the ridge very broad and convex at the base, narrower beyond the nostrils, from which a groove proceeds obliquely to the commencement of the hooked tip; the sides convex and nearly erect, the edges sharp. Lower mandible with the angle very long and narrow, the dorsal line beyond it, decurved, the sides sloping outwards, the edges sharp and inflected, the curved tip grooved above.

Head rather large, oblong, rather compressed. Neck short and stout. Body moderate, deeper than broad. Wings long. Feet rather large; tibia bare for a short space below; tarsus of moderate length, compressed, covered all round with angular scales, the hind ones much smaller; hind toe obsolete, but with a small conical deflected claw; fore toes long, slender, connected by reticulated webs, the lateral ones with thin edges; outer toe slightly longer than the third, but with a shorter claw, the first considerably shorter; toes scutellate above; claws arched, compressed, acute, that of third toe with an enlarged sharp edge.

Plumage soft, close, blended; on the back compact, the feathers rounded. Wings very long, pointed; primary quills tapering, the first longest, the second considerably shorter, the rest rapidly graduated; secondaries short, broad, obliquely rounded, the inner not elongated. Tail of moderate length, graduated, of twelve rounded feathers.

Bill yellowish-green, the tips brownish-black, tinged with green. Edges of eyelids dark-grey; iris brown. Feet light greenish-grey, webs and claws yellowish flesh-colour. The upper parts in general are deep brown, the hind neck paler and tinged with grey; the primary quills and tail brownish-black. The lower parts are greyish-white; the lower wing-coverts white, those next the edge of the wing greyish-black towards the end, the axillary feathers white, greyish-brown towards the end, lower tail-coverts similar.

Length to end of tail 20 inches, to end of wings $21\frac{1}{4}$; to end of claws $21\frac{1}{4}$; extent of wings 45; wing from flexure $13\frac{1}{4}$; tail 5; bill along the back $2\frac{1}{2}$, along the edge of lower mandible $2\frac{3}{4}$; tarsus $2\frac{1}{4}$; middle toe $2\frac{1}{4}$, its claw $\frac{1}{4}$. Weight 1 lb. $9\frac{3}{4}$ oz.

THE PURPLE SANDPIPER.

TRINGA MARITIMA, BRUNN.

PLATE CCLXXXIV. ADULT IN SUMMER AND IN WINTER.

I AM surprised that my worthy friend THOMAS NUTTALL speaks of this species as being scarcely ever seen in the United States, where, to my knowledge, it is on the contrary very abundant, and nowhere more so than in the neighbourhood of the Harbour of Boston, in the markets of which city it is sold in autumn and winter. When I was there, a gunner whom I employed brought me several dozens, which he had killed in the course of a single afternoon. I have also seen some in the markets of New York. Farther south, however, they are rarely met with.

Timid though not shy, they are seen in flocks of eight or ten, on the rocky shores of the sea. They seem to shun sandy beaches, and seldom advance far inland. While I was on the Bay of Fundy, I observed numerous small flocks winging their way northward, in the month of May. On one occasion, a flock alighted almost at my feet, so that I was obliged to retire to a proper distance before shooting at them.

Their flight is pretty rapid, and when necessary sustained, for I have observed them flying in compact bodies across the Gulf of St Lawrence. When started along the shores, they emit a feeble *weet*, which is repeated two or three times, take a sweep over the water, and return to the same spot or near it, somewhat in the manner of the Spotted Sandpiper. They are generally very busy while searching for food, run nimbly with the body lowered on the legs, which are much bent, go to the edge of the water, seize on small shell-fish, shrimps and worms, and search industriously among the sea-weeds for marine insects. Their marked predilection for rocky shores has caused them to be named "Rock Snipes" by the gunners of our eastern coast. In autumn and winter the young birds become fat, and afford delicate eating.

I was sadly disappointed at not finding them breeding on any part of the coast of Labrador which I visited, the more so because Dr RICHARDSON says they are abundant on the shores of Hudson's Bay, where they breed. He gives no description of the nest or localities on which they deposit their eggs, which are said to be "pyriform, 16½ lines

long, and an inch across at their greatest breadth. Their colour is yellowish-grey, interspersed with small irregular spots of pale brown, crowded at the obtuse end, and rare at the other."

TRINGA MARITIMA, Ch. Bonaparte, Synopsis of Birds of the United States, p. 318 —
Swains. and Richards. Fauna Bor. Amer. part ii. p. 382.

PURPLE SANDPIPER, Nuttall, Manual, vol. ii. p. 115.

Adult in summer. Plate CCLXXXIV. Fig. 1.

Bill longer than the head, almost straight, subulate, compressed at the base, flexible; upper mandible with the dorsal line almost straight, being slightly deflected towards the end, the ridge narrow and convex, towards the end broader, the sides sloping, the edges rather obtuse. Nostrils basal, lateral, linear; nasal groove extending to near the end of the bill. Lower mandible with the angle long and very narrow, the dorsal line beyond it slightly concave, the sides sloping upwards with a narrow groove, the tip rounded.

Head rather small, oblong, compressed. Neck shortish. Body full. Feet of moderate length, slender; tibia bare for a short space; tarsus rather short, compressed, anteriorly covered with scutella, laterally reticulated; toes of moderate length, excepting the first, which is very small, third longest and including the claw longer than the tarsus, fourth slightly longer than second; fore toes scutellate above, without webs at the base, the middle one with an inner thickish margin, the lateral each with an outer one; claws considerably curved, compressed, obtuse, that of hind toe very small, of middle toe largest, with a dilated thin inner edge.

Plumage soft, blended, on the back rather compact, the feathers rounded. Wings rather long, pointed; primaries tapering, rounded, the first longest, the second slightly shorter; outer secondaries short, obliquely truncate, inner elongated and tapering. Tail short, rounded, the central feathers elongated.

Bill deep orange, towards the end dusky. Edges of eyelids grey, iris orange. Feet light orange, claws dusky. Head greyish-brown tinged with purple, its sides and those of the neck deep purple; back and wings brownish-black, with purple reflections, the margins of the feathers white; quills brownish-black, their shafts, the tips of all the secondaries, and the greater part of the middle ones, white; middle tail-feathers brownish-black, tinged with purple, the lateral shaded into ash-grey. Upper part

of throat greyish-white, fore neck grey; breast, sides, and abdomen white.

Length to end of tail $9\frac{1}{2}$, to end of wings $9\frac{4}{8}$, to end of claws 10; extent of wings $14\frac{5}{8}$; wing from flexure 5, tail $2\frac{1}{2}$; bill along the back $1\frac{6}{8}$, along the edge of lower mandible $1\frac{6}{8}$; tarsus $\frac{1}{2}$; middle toe $\frac{1}{2}$, its claw $\frac{5}{8}$. Weight $3\frac{1}{4}$ oz.

Adult in Winter. Plate CCLXXXIV. Fig. 2.

The principal differences in the winter plumage are, that the lower parts are pale grey, while the upper have the purple tints much fainter, the white edgings substituted by dull grey.

THE FORKED-TAILED GULL.

LARUS SABINI, SABINE.

PLATE CCLXXXV. MALE.

ON my return from Labrador, I had the pleasure of seeing this interesting little Gull flying over the harbour of Halifax in Nova Scotia. It was in company with our Common American Gull. Although I have not observed it on our eastern shores or farther south on the coast, it is not improbable that it rambles there in winter along with other species which, like itself, breed far north. Its flight in some measure resembles that of the Common Tern, although it is more decided, and, consequently, more like that of the smaller species of its own genus. In the course of a voyage from Pictou in Nova Scotia to Hull in England, lately performed by my friend Mr THOMAS MACCULLOCH, he saw great numbers of this species when more than a hundred miles off Newfoundland. They flew around the ship in company with an almost equal number of Ross's Gull.

Dr RICHARDSON gives the following account of the Forked-tailed Gull, in the *Fauna Boreali-Americana*. "This interesting species of Gull was discovered by Captain EDWARD SABINE. It was first seen on the 25th of July at its breeding station on some low rocky islands lying off the west coast of Greenland, associated in considerable numbers with the Arctic Tern, the nests of both birds being intermingled. It is analogous to the Tern not only in its forked tail, and in its choice of a breeding place, but also in the boldness which it displays in the protection of its young. The parent birds flew with impetuosity towards persons approaching their nests, and when one was killed, its mate, though frequently fired at, continued on the wing close to the spot. They were observed to get their food on the sea-beach, standing near the water's edge, and picking up the marine insects which were cast on shore. A solitary individual was seen in Prince Regent's Inlet, on Sir EDWARD PARRY's first voyage, and many specimens were procured in the course of the second voyage on Melville Peninsula. Captain SABINE also killed a pair at Spitzbergen, so that it is a pretty general summer visitor to the Arctic Seas, and is entitled to be enumerated amongst the European as well as the American birds. It arrives in the high northern latitudes in June, and retires to

the southward in August. Specimens procured in June and July corresponded exactly with the one described below. When newly killed, they all had a delicate pink blush on their under plumage. The eggs, two in number, are deposited on the bare ground, and are hatched in the last week of July. They are an inch and a half in length, and have an olive colour with many brown blotches."

At the approach of autumn, it frequently happens that several species of gulls associate together, and at times congregate in great numbers on the outer margins of sand-bars and in the large estuaries. There they keep up a constant cackling, run about, dress their plumage, and await the rising of the waters. If disturbed at such times, they shew greater shyness than perhaps at any other. One of the oldest birds sounds an alarm, and all simultaneously take to wing, disperse, and gradually rise to a great elevation, flying in wide circles, and moving seaward. I have thought it remarkable that these birds seldom shun the fishermen, while towards any one bearing the semblance of a gunner they act with extreme caution. Although loquacious when congregated, they are when separated quite silent, especially when on wing. In squally and rainy weather they skim low over the water or the land, always against the wind. They are very tenacious of life, and often, when wounded, revive after you had considered them incapable of breathing. The instant they are caught they are wont to mute and eject the contents of their stomach, as well as when suddenly compelled to take to wing, or when pursued by predaceous birds. In particular states of the weather they appear at a distance much larger than they really are, and, on such occasions, they also seem much nearer, so that the gunner is greatly deceived, and may shoot at them when too far off.

LARUS SABINI, *Sabine*, (J.) Linn. Trans. vol. xii. p. 520. pl. 29.

LARUS SABINI, *FORK-TAILED GULL*, *Swains. and Richards. Fauna Bor. Amer.* part ii. p. 428.

FORK-TAILED GULL, *Nuttall, Manual*, vol. ii. p. 295.

Adult Male. Plate CCLXXXV. Fig. 1.

Bill rather shorter than the head, nearly straight, rather slender, compressed. Upper mandible with its dorsal line straight to the middle, then curved and declinate, the ridge convex, the sides slightly convex, the edges sharp and inflected, the tip rather obtuse. Nasal groove rather

long and narrow ; nostrils in its fore part, longitudinal, submedial, linear, pervious. Lower mandible with a slight prominence at the end of the angle, which is long and narrow, the dorsal line then straight or slightly concave, the ridge convex, the sides nearly flat.

Head of moderate size. Neck short. Body rather slender. Wings very long. Feet of moderate length, rather strong ; tibia bare below for a short space, covered behind with narrow scutella ; tarsus compressed, anteriorly covered with numerous scutella and three inferior series of transverse scales, laterally with rounded scales, posteriorly with oblique scutella. Toes slender, scutellate above ; first extremely small, second much shorter than fourth, third longest, anterior toes connected by reticulated webs, the outer and inner slightly marginate ; claws small, compressed, obtuse, that of middle toe with an expanded inner edge.

Plumage close, soft, blended. Wings very long and pointed : primaries tapering and rounded, first longest, second almost equal, the rest rapidly graduated ; secondaries obliquely pointed, the rounded extremity extending beyond the tip of the shaft, which is exterior to it, the inner feathers more elongated. Tail of moderate length, forked, of twelve feathers.

Bill black at the base for more than half its length, the rest pure yellow. Edges of eyelids vermilion, as is the inside of the mouth. Feet black. Head and upper part of neck all round blackish-grey, that colour terminated below by a ring of pure black encircling the neck. Lower neck all round, the whole lower surface, the upper tail-coverts and the tail, pure white. The back and wings are bluish-grey, excepting a large terminal portion of the secondaries, and the tips of the primaries, which are white, the primaries themselves being black, with their shafts brownish-black. The first quill of the specimen figured had no white on the tip, but some individuals differ in this respect.

Length to end of tail 13 inches, to end of wings $14\frac{1}{4}$; extent of wings 33 ; wing from flexure $10\frac{1}{4}$; tail 5 ; bill along the ridge 1, along the edges $1\frac{1}{4}$; tarsus $1\frac{1}{2}$; middle toe 1, its claw $\frac{1}{2}$. Weight 7 oz.

The Female is rather less than the male, but in other respects similar.

THE LOST PORTFOLIO.

WHILE I was at Natchez, on the 31st of December 1820, my kind friend NICHOLAS BERTHOUD, Esq. proposed to me to accompany him in his keel-boat to New Orleans. At one o'clock, the steam-boat Columbus hauled off from the landing, and took our bark in tow. The steamer was soon ploughing along at full speed, and little else engaged our minds than the thought of our soon arriving at the emporium of the commerce of the Mississippi. Towards evening, however, several inquiries were made respecting particular portions of the luggage, among which ought to have been one of my portfolios containing a number of drawings made by me while gliding down the Ohio and Mississippi from Cincinnati to Natchez, and of which some were to me peculiarly valuable, being of birds previously unfigured, and perhaps undescribed. The portfolio was nowhere to be found, and I recollected that I had brought it under my arm to the margin of the stream, and there left it to the care of one of my friend's servants, who, in the hurry of our departure, had neglected to take it on board. Besides the drawings of birds, there was in this collection a sketch in black chalk, to which I always felt greatly attached while from home. It is true the features which it represented were indelibly engraved in my heart; but the portrait of her to whom I owe so much of the happiness that I have enjoyed was not the less dear to me. When I thought during the following night of the loss I had sustained in consequence of my own negligence, imagined the possible fate of the collection, and saw it in the hands of one of the numerous boatmen lounging along the shores, who might paste the drawings to the walls of his cabin, nail them to the steering-oars of his flat-boat, or distribute them among his fellows, I felt little less vexed than I did some years before when the rats, as you know, devoured a much larger collection.

It was useless to fret myself, and so I began to devise a scheme for recovering the drawings. I wrote to Mr GARNIER and my venerable friend CHARLES CARRE'. Mr BERTHOUD also wrote to a mercantile acquaintance. The letters were forwarded to Natchez from the first landing place at which we stopped, and in the course of time we reached the great eddy running by the Levee or artificial embankment at New Orleans. But before I present you with the answers to the letters sent to our ac-

quaintances at Natchez, allow me to offer a statement of our adventures on the Mississippi.

After leaving the eddy at Natchez, we passed a long file of exquisitely beautiful Bluffs. At the end of twenty hours we reached Bayou Sara, where we found two brigs at anchor, several steamers, and a number of flat-boats, the place being of considerable mercantile importance. Here the Columbus left us to shift for ourselves, her commander being anxious to get to Baton Rouge by a certain hour, in order to secure a good cargo of cotton. We now proceeded along the great stream, sometimes floating and sometimes rowing. The shores gradually became lower and flatter, orange-trees began to make their appearance around the dwellings of the wealthy planters, and the verdure along the banks assumed a brighter tint. The thermometer stood at 68° in the shade at noon; butterflies fluttered among the flowers, of which many were in full blow; and we expected to have seen alligators half-awake floating on the numberless logs that accompanied us in our slow progress. The eddies were covered with ducks of various kinds, more especially with the beautiful species that breeds by preference on the great sycamores that every now and then present themselves along our southern waters. Baton Rouge is a very handsome place, but at present I have not time to describe it. Levees now began to stretch along the river, and wherever there was a sharp point on the shore, negroes were there amusing themselves by raising shrimps, and now and then a cat-fish, with scooping-nets.

The river increased in breadth and depth, and the sawyers and planters, logs so called, diminished in number the nearer we drew towards the famed city. At every bend we found the plantations increased, and now the whole country on both sides became so level and destitute of trees along the water's edge, that we could see over the points before us, and observe the great stream stretching along for miles. Within the levees the land is much lower than the surface of the river when the water is high; but at this time we could see over the levee from the deck of our boat only the upper windows of the planters' houses, or the tops of the trees about them, and the melancholy looking cypresses covered with Spanish moss forming the back ground. Persons rode along the levees at full speed; pelicans, gulls, vultures, and carrion crows sailed over the stream, and at times there came from the shore a breeze laden with the delicious perfume of the orange-trees, which were covered with blossoms and golden fruits.

Having passed Bayou Lafourche, our boat was brought-to on account

of the wind, which blew with violence. We landed, and presently made our way to the swamps, where we shot a number of those beautiful birds called Boat-tailed Grakles. The mocking birds on the fence-stakes saluted us with so much courtesy and with such delightful strains, that we could not think of injuring them; but we thought it no harm to shoot a whole covey of partridges. In the swamps we met with warblers of various kinds, lively and beautiful, waiting in these their winter retreats for the moment when Boreas should retire to his icy home, and the gentle gales of the south should waft them toward their breeding places in the north. Thousands of swallows flew about us, the cat-birds mewed in answer to their chatterings, the cardinal grosbeak elevated his glowing crest as he stood perched on the magnolia branch, the soft notes of the doves echoed among the woods, nature smiled upon us, and we were happy.

On the fourth of January we stopped at Bonnet Carré, where I entered a house to ask some questions about birds. I was received by a venerable French gentleman, whom I found in charge of about a dozen children of both sexes, and who was delighted to hear that I was a student of nature. He was well acquainted with my old friend CHARLES CARRÉ, and must, I thought, be a good man, for he said he never suffered any of his pupils to rob a bird of her eggs or young, although, said he with a smile, "they are welcome to peep at them and love them." The boys at once surrounded me, and from them I received satisfactory answers to most of my queries respecting birds.

The sixth of January was so cold that the thermometer fell to 30°, and we had seen ice on the running boards of our keel boat. This was quite unlooked for, and we felt uncomfortable; but before the middle of the day, all nature was again in full play. Several beautiful steamers passed us. The vegetation seemed not to have suffered from the frost; green pease, artichokes and other vegetables were in prime condition. This reminds me that on one of my late journeys, I ate green pease in December in the Floridas, and had them once a-week at least in my course over the whole of the Union, until I found myself and my family feeding on the same vegetable more than a hundred miles to the North of the St John's River in New Brunswick.

Early on the seventh, thousands of tall spars, called masts by the mariners, came in sight; and as we drew nearer, we saw the port filled with ships of many nations, each bearing the flag of its country. At

length we reached the Levee, and found ourselves once more at New Orleans. In a short time my companions dispersed, and I commenced a search for something that might tend to compensate me for the loss of my drawings.

On the 16th of March following, I had the gratification of receiving a letter from Mr A. P. BODLEY, of Natchez, informing me that my portfolio had been found and deposited at the office of "the Mississippi Republican," whence an order from me would liberate it. Through the kindness of Mr GARNIER, I received it on the 5th of April. So very generous had been the finder of it, that when I carefully examined the drawings in succession, I found them all present and uninjured, save one, which had probably been kept by way of commission.

THE WHITE-FRONTED GOOSE.

ANSER ALBIFRONS, BECHST.

PLATE CCLXXXVI. MALE.

NEITHER WILSON nor NUTTALL seem to have been aware of the regularity with which this species migrates through the United States. When I shewed a drawing of it to the first of these authors, he pronounced it to be a young Snow Goose, although I described to him its peculiar notes. During the whole of my residence in Kentucky, a winter never passed without my seeing a good number of them; and at that season they are frequently offered for sale in the markets of New Orleans. An English gentleman, who was on his way to the settlement of Birkbeck in the Prairies west of the Ohio, and who spent a few weeks with me at Henderson, was desirous of having a tasting of some of our game. His desire was fully gratified, and the first that was placed before him was a White-fronted Goose. I had killed seven of these birds, the evening before, in a pond across the Ohio, which was regularly supplied with flocks from the beginning of October to the end of March. He pronounced it "delicious," and I have no reason to dissent from his opinion. From the numbers seen high on the Arkansas River, I presume that many winter beyond the southern limits of the United States. They are exceedingly rare, however, along our Atlantic coast. In Kentucky they generally arrive before the Canada Goose, betaking themselves to the grassy ponds; and of the different species which visit that country they are by far the least shy. The flocks seldom exceed from thirty to fifty individuals. Their general appearance is that exhibited in the plate, and which I consider as their winter plumage, feeling pretty confident that in summer the lower part of the body becomes pure black.

The flight of the White-fronted is very similar to that of the Canada Goose, being firm and well sustained. When travelling, these birds pass at a considerable height, arranged in the same angular order, and apparently guided by one of the older Ganders. They walk with ease, and can run with considerable speed when wounded. In feeding they immerse their necks, like other species; but during continued rains they visit the cornfields and large savannahs. While in Kentucky they feed on the beech nuts and acorns that drop along the margins of their fa-

avourite ponds. In the fields they pick up the grains of maize left by the squirrels and racoons, and nibble the young blades of grass. In their gizzards I have never found fishes or water lizards, but often broken shells of different kinds of snails.

They leave us a fortnight sooner than the Canada Geese, and start along with the Snow Geese, but keep in separate flocks. In this order they have been observed travelling over the fur countries by Dr RICHARDSON, who informs us that they breed in the woody districts skirting Mackenzie's River to the north of the sixty-seventh parallel, and also on the islands of the Arctic Sea; but that they are not common about Hudson's Bay. The egg of this Goose measures two inches and three-quarters in length, by one and three-quarters in breadth. The shell is smooth, of a dull yellowish-green, with indistinct patches of a darker tint of the same colour.

ANAS ALBIFRONS, *Gmel. Syst. Nat. vol. i. p. 509.*—*Lath. Ind. Ornith. vol. ii. p. 842.*

ANSER ALBIFRONS, *Ch. Bonaparte, Synopsis of Birds of the United States, p. 376.*—

Swains. and Richard. Fauna Bor. Amer. part ii. p. 456.

WHITE-FRONTED OR LAUGHING GOOSE, *Nuttall, Manual, vol. ii. p. 346.*

Adult Male. Plate CCLXXXVI. Fig. 1.

Bill shorter than the head, much higher than broad at the base, somewhat conical, depressed towards the end, rounded at the tip. Upper mandible with the dorsal line sloping, the ridge broad and flattened, but slightly convex, the sides sloping, the edges with twenty-eight oblique lamellæ, the unguis circular, convex, obscurely denticulate along the edge. Nasal groove oblong, parallel to the ridge, filled by the soft membrane of the bill; nostrils medial, lateral, longitudinal, narrow-elliptical, open, pervious. Lower mandible nearly straight, with the angle very long and rather narrow, the edges soft and obtuse, with about forty oblique, slightly recurved lamellæ.

Head of moderate size, oblong, compressed. Neck rather long and slender. Body full, slightly depressed. Feet rather short, strong, placed rather behind the centre of the body; legs bare a little above the joint; tarsus rather short, a little compressed, covered all round with angular reticulated scales, which are smaller behind; hind toe very small, with a narrow membrane; third toe longest, fourth considerably shorter, but longer than second; all the toes reticulated above at the base, but with narrow transverse scutella towards the end; the three anterior connected by

a reticulated membrane, the outer having a thick margin, the inner with the margin extended into a two-lobed web; claws small, arched, rather compressed, obtuse, that of the middle toe bent obliquely outwards and depressed, with a curved edge.

Plumage close, full, compact above, blended on the neck and lower part of the body, very short on the head. Feathers of the head and neck very narrow, on the latter part disposed in oblique series separated by grooves, of the back very broad and abrupt, of the breast and belly broadly rounded. Wings rather long, broad; primaries incurved, broad, towards the end tapering, the second longest, first and third about equal, first and second sinuate on the inner web, second and third on the outer; secondaries long, very broad, rounded. Tail very short, rounded, of sixteen broad rounded feathers.

Bill carmine-red, the unguis of both mandibles white. Edges of eyelids dull orange; iris hazel. Feet orange, webs lighter; claws white. Head and neck rich greyish-brown, the upper part of the former darker; a white band, margined behind with blackish-brown on the anterior part of the forehead along the bill. The general colour of the back is deep grey, the feathers of its fore part broadly tipped with greyish-brown, the rest with greyish-white; the hind part of the back pure deep grey. Wings greyish-brown, but towards the edge ash-grey, as are the primary coverts, and outer webs of the primaries; the rest of the primaries and the secondaries are greyish-black, the latter with a narrow edge of greyish-white, the former edged and tipped with white. Breast, abdomen, lower tail-coverts, sides of the rump and upper tail-coverts, white, but the breast and sides patched with brownish-black; on the latter intermixed with greyish-brown feathers.

Length to end of tail $27\frac{1}{2}$ inches, to end of wings 26, to end of claws $28\frac{3}{8}$; extent of wings 60; wing from flexure $14\frac{1}{2}$; tail $4\frac{3}{4}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $2\frac{1}{2}$; middle toe $2\frac{4}{8}$, its claw $\frac{1}{2}$. Weight $5\frac{1}{2}$ lb.

Adult Female. Plate CCLXXXVI. Fig. 2.

The Female, which is somewhat smaller, resembles the male; the white margins of the wing-feathers not so distinct. Weight 4 lb. 4 oz.

The gizzard is very large, its muscular coat an inch and a half thick at the lower extremity, the cuticular lining thick, very hard, and denticulate on one side. The intestine seven feet long, the cæca twelve inches and placed at the distance of one foot from the anus.

THE IVORY GULL.

LARUS EBURNEUS, PHIPPS.

PLATE CCLXXXVII. ADULT AND YOUNG.

HAVING ascertained that this beautiful species visits the southern coast of Labrador and Newfoundland every winter, I have thought it probable that it occasionally extends its rambles as far as our eastern shores, and therefore determined to include it in my Illustrations. The figures in the plate were taken from two specimens procured by Captain JAMES CLARK Ross, one of which was an adult male, the other a young bird in its second year. Captain SABINE says that the Ivory Gulls are attracted in considerable numbers by whale blubber, are therefore usually found in company with the *Procellaria glacialis*, and are easily killed, being by no means shy. Dr RICHARDSON informs us that they were observed breeding in great numbers on the high perforated cliffs which form the extremity of Cape Parry, in latitude 70°.

LARUS EBURNEUS, *Phipps's Voyage*, p. 187.—*Lath. Ind. Ornith.* vol. ii. p. 816 —

Scoops. and *Richards.* *Fauna Bor. Amer.* part ii. p. 419.

IVORY GULL, *Lath. Synops.* vol. vi. p. 377.—*Nuttall, Manual*, vol. ii. p. 301.

Adult Male. Plate CCLXXXVII. Fig. 1.

Bill shorter than the head, robust, nearly straight, compressed. Upper mandible with the dorsal line nearly straight at the base, arched and declinate towards the end, the ridge convex, the sides slightly so, the edges sharp, a little inflected, somewhat arched, the tip rather obtuse. Nasal groove rather long and narrow; nostrils in its fore part, lateral, longitudinal, linear, wider anteriorly, pervious. Lower mandible with a prominence at the end of the angle, which is long and narrow, the dorsal line slightly concave and ascending, the sides flattened, the edges sharp and inflected.

Head rather large. Neck of moderate length, strong. Body rather full. Feet of moderate length, stout; tibia bare below; tarsus somewhat compressed, covered before with numerous scutella, on the sides and behind with series of small angular scales; the hind toe very small and ele-

vated, the fore toes of moderate length, the fourth much longer than the second, the third longest, the hind one with a single scutellum and three transverse series of scales, the rest scutellate above and connected by reticulate membranes having a concave margin, the lateral toes margined externally with a narrow membrane. Claws stout, rather large, arched, compressed, rather obtuse, that of middle toe with an enlarged inner edge.

The plumage in general is close, full, elastic, soft and blended, on the back rather compact. Wings very long, rather broad, acute, the first quill longest, the other primaries rapidly graduated; secondaries broad and rounded, the inner tapering but rounded. Tail of moderate length, even, of twelve rather broad rounded feathers.

Bill bright yellow, greenish dusky at the base. Iris brown, edges of eyelids vermilion. Feet and claws black. The whole of the plumage is pure white.

Length to end of tail 19 inches, to end of wings $20\frac{1}{2}$; extent of wings 41; wing from flexure $13\frac{1}{4}$; tail $6\frac{1}{4}$; bill along the back $1\frac{5}{8}$, along the edge of lower mandible 2; tarsus $1\frac{7}{8}$; middle toe $1\frac{9}{8}$, its claw $\frac{5}{12}$. Weight 20 oz.

Young of the second year, killed in September. Plate CCLXXXVII. Fig. 2.

After the second moult, the bill is pale yellow at the end, dusky at the base for two-thirds of its length; the edges of the eyelids vermilion, the iris brown, the feet black. The plumage is white; the forehead and sides of the head mottled with leaden-grey; most of the wing-coverts have towards the end a spot of greyish-black, and the quills, large coverts, and tail-feathers are similarly marked, the markings on the tail forming a subterminal bar.

THE YELLOWSHANK.

TOTANUS FLAVIPES, VIEILL.

PLATE CCLXXXVIII. MALE.

THE Yellowshank is much more abundant in the interior, or to the westward of the Alleghany Mountains than along our Atlantic coast, although it is also met with in the whole extent of the latter, from Florida to Maine. It exceeds the Tell-tale Godwit in numbers on the shores of the Ohio, as well as on the margins of the numerous ponds and lakes in the vicinity of the Mississippi, from the mouth of the river just mentioned to New Orleans, and beyond that city southward. In early autumn, when the sand-bars of the Ohio are left uncovered, these active birds are seen upon them in small flocks, formed each apparently of a single family, busily employed in searching for food, and wading in the water up to the feathered part of their legs. When the water is high, they resort to ponds and damp meadows intersected by small rivulets. In the Carolinas and the Floridas they are pretty numerous, in the former betaking themselves to the rice-fields, and in the latter to the wet savannahs. They are equally fond of frequenting the shores of our estuaries that are bordered by salt marshes, on the muddy edges of which they find their food. I have also met with them on the margins of clear streams in the interior of the States, and indeed should hardly be able to mention a district in which the species is not to be seen, from the beginning of September until May, when the greater number retire northward, although some remain and breed, even in our Middle States, as NUTTALL says they are seen in the neighbourhood of Boston in the middle of June. I found a few on the coast of Labrador, but did not succeed in discovering their nests, which was the more surprising that these birds, according to my friend THOMAS MACCULLOCH, breed in considerable numbers about Pictou. He describes the nest as placed among the grass on the edges of the rivers and large ponds of the interior.

The flight of the Yellowshank is very similar to that of the Tell-tale Godwit. They generally run to some distance before they take to wing, stop as if to discover your intention, vibrate their body backwards and forwards, intimate by their cries the knowledge they have of the nature of

the weapon you carry, and, as if convinced that you are bent on mischief, spring up, rise obliquely to some height, emit louder notes, and with continued flappings pass around you, or remove to some distant place. Their long yellow legs, which are stretched out behind, are quite conspicuous when they are on wing. Should you bring one to the ground wounded, it walks off leisurely, vibrates its body, and emits plaintive cries; and should one fall into the water under similar circumstances, it paddles its way towards the nearest shore with considerable speed. If you approach it, it may immerse its head, but it cannot dive to any depth.

In very dry weather, I have observed this species on the uplands searching for grasshoppers and insects. It has been alleged that when one is wounded, its companions hover around so as to be easily shot; but this I have never observed, for although they are perhaps less shy than the Tell-tales, on such occasions, I never found one of them to remain; they seemed, on the contrary, to be well aware of the danger, and would fly quite out of sight, rising high in the air, and pursuing a direct course, emitting cries at intervals.

Along the shores of the sea, they are now and then seen in company with other species, although they cannot be said actually to associate with them. In autumn they become fat, and by many are considered good eating, although they always have a kind of fishy taste not at all agreeable to my palate. Their food consists of diminutive fishes, shrimps, worms, and aquatic insects.

I have represented one of these birds on the fore ground of a little piece of water a few miles distant from Charleston in South Carolina, on the borders of which, in the company of my kind friend JOHN BACHMAN and others, I have spent many a pleasant hour, while resting after fatiguing rambles in the surrounding woods.

SCOLOPAX FLAVIPES, *Lath. Ind. Ornith. vol. ii. p. 723.—Ch. Bonaparte, Synopsis of Birds of the United States, p. 324.*

YELLOWSHANKS SNIPE, SCOLOPAX FLAVIPES, Wils. Amer. Ornith. vol. vii. p. 53. pl. 58. fig. 4.

TOTANUS FLAVIPES, YELLOWSHANKS TATLER, Swains. and Richards. Fauna Bor. Amer. part ii. p. 390.

YELLOWSHANKS TATLER, Nuttall, Manual, vol. ii. p. 152.

Adult Male in Summer. Plate CCLXXXVIII. Fig. 1.

Bill little longer than the head, very slender, subcylindrical, straight, flexible, compressed at the base, the point rather depressed and obtuse.

Upper mandible with the dorsal line straight, the ridge convex, broader at the base, slightly depressed towards the end, the sides sloping, towards the end convex, the edges soft and obtuse, the tip slightly deflected. Nasal groove long and narrow, extending to a little beyond the middle of the bill; nostrils basal, linear, pervious. Lower mandible with the angle very long and extremely narrow, the dorsal line straight, the sides convex, with a slight groove in their basal half.

Head small, oblong, anteriorly narrowed. Eyes large. Neck rather long and slender. Body slender. Feet very long, slender; tibia bare for half its length, scutellate before and behind; tarsus also scutellate before and behind; hind toe very small and elevated; fore toes of moderate length, very slender, connected at the base by webs, of which the outer is much larger; second or inner toe considerably shorter than fourth, third longest; all scutellate above, flat and marginate beneath. Claws small, slightly arched, much compressed, obtuse, that of middle toe much larger, with the inner edge enlarged.

Plumage very soft, blended, on the fore part of the head very short. Wings long, narrow, pointed; primaries narrow and tapering, first longest, second a little shorter, the rest rapidly graduated; secondaries short, broad, incurved, obliquely rounded, the inner elongated and tapering. Tail short, rounded, of twelve rounded feathers.

Bill black. Iris dark brown; edges of eyelids dark grey. Feet bright yellow, claws brownish-black. Upper part of the head, lores, cheeks, neck, and sides of the neck deep brownish-grey, the edges of the feathers greyish-white; a white line from the bill to the eye and over it; upper part of throat white; fore neck greyish-white, streaked with brownish-grey, as are the sides, the rest of the lower parts white, the lower tail-coverts slightly marked with grey. The general colour of the back and scapulars is olivaceous brown tinged with grey, the feathers edged with small dusky and white spots. The wing-coverts and inner secondary quills are similar, the marginal spots on the latter forming bands; primary quills blackish-brown, the shaft of the outer brownish-white, of the rest dark brown, the edges of the inner, and of the middle secondaries white; hind part of back grey, upper tail-coverts white, the larger obscurely barred with grey.

Length to end of tail $10\frac{1}{2}$ inches, to end of wings $11\frac{1}{2}$, to end of claws $13\frac{1}{2}$, extent of wings 20; wing from flexure $6\frac{1}{2}$; tail $2\frac{1}{2}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; bare part of tibia $1\frac{1}{2}$; tarsus $1\frac{1}{2}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$. Weight $2\frac{1}{2}$ oz.

SOLITARY SANDPIPER.

TOTANUS CHLOROPYGIUS, VIEILL.

PLATE CCLXXXIX. MALE.

THE only nest of this bird that I ever met with was placed in an elevated part of the woods near Bayou Sara, on the margin of a small pond scarcely ten yards broad, overgrown with low bushes, and cumbered with fallen branches of trees. It was formed of grass and withered leaves, arranged without much care, and contained three eggs. Both birds were greatly disconcerted, ran round me, and frequently alighted on the twigs and branches with all the nimbleness of land birds, constantly throwing their heads forward and vibrating their body and tail in the manner of the Louisiana Water Thrush. The eggs measured one inch one eighth and a half in length, seven and a half eighths in breadth; the colour was greenish-yellow, with spots and patches of umber, more abundant around the crown, where the larger marks formed a conspicuous circle. I carried one of the eggs home, and, on returning a few days after to the spot, found one of the birds sitting, which proved to me that the great anxiety shewn at my first visit was chiefly because the female was about to lay her last egg. The male was absent, nor did it shew itself during my stay. About a fortnight after I found the wings of one of the birds near the place; the eggs also were gone; and I concluded that some quadruped, probably a racoon, had committed the havock. No bird of this species was in the neighbourhood.

In the Fauna Boreali-Americana, Dr RICHARDSON says that in high northern latitudes these birds deposit their eggs on the bare sand, which is another proof in addition to the many already given, that great differences as to the mode of nesting may exist in the same species in different parts of the country. Indeed, almost all the habits of this curious bird differ according to the locality. In the Southern States, they are particularly fond of low flat lands among deep woods and cane brakes, and rarely approach ponds of any great extent, but prefer those which are small and most secluded. In the Middle Districts I have found them along the Leigh-high, and in watery places both on low and on elevated ground. In the State of Maine they frequented similar localities. In the prairies of In-

diana I have seen them in early spring, during rainy weather, wading and running through the water, on the very foot-path before me, for eight or ten yards at a time. When flushed, they would fly in a semicircle close over the ground, and re-align at the distance of a hundred yards or so on the same path. Not one of the species was observed in Labrador or Newfoundland by my party; and my friend THOMAS MACCULLOCH informs me that only a few single birds are seen near Pictou, and that in autumn, when they keep in marshy grounds in the neighbourhood of the sea.

The flight of the Solitary Sandpiper is swift and protracted. It moves in a zigzag manner, and at times makes its way through the woods with surprising ease, seldom leaving the starting place without uttering a clear and pleasant tweet. In re-aligning it pitches downwards like the Common Snipe. On the ground they are very active, and at times so indifferent to the approach of man, that they will merely fly across or around a small pond for a considerable time, and, if shot at and not touched, they will be sure to be found in the same place a few hours after. Its alighting on trees has often appeared to me as singular as that of Bartram's Snipe and the Semipalmated species. The Solitary Snipe is, however, the most expert at catching insects on the wing, especially the smaller kinds of dragon-flies, which it chases from the sticks on which they alight, and generally seizes before they have flown across the little ponds, which are the favourite place of resort of this species. I have found their stomachs filled with aquatic insects, caterpillars of various kinds, and black spiders of considerable size.

I consider this bird to be a constant resident in the United States, although it ranges over a great space in summer and winter. Scarcely any difference is observable in the sexes; and I am of opinion that the young acquire their full plumage the first spring.

TOTANUS CHLOROPYGIUS, *Ch. Bonaparte*, Synopsis of Birds of the United States, p. 325.—*Swains. and Richards*. Fauna Bor. Amer. part ii. p. 393.

SOLITARY SANDPIPER, TRINGA SOLITARIA, *Wils.* Amer. Ornith. vol. vii. p. 53. pl. 58. fig. 3.

GREEN-RUMP TATLER, *Nuttall*, Manual, vol. ii. p. 159.

Adult Male. Plate CCLXXXIX. Fig. 1.

Bill a little longer than the head, very slender, subcylindrical, straight,

flexible, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line straight, the ridge convex, broader at the base, slightly depressed towards the end, the sides sloping, towards the end convex, the edges soft and obtuse, the tip very slightly deflected. Nasal groove long and narrow, extending to a little beyond the middle of the bill; nostrils basal, linear, pervious. Lower mandible with the angle very long and extremely narrow, the dorsal line straight, the sides convex, with a slight groove in their basal half.

Head small, oblong, anteriorly narrowed. Eyes large. Neck rather long and slender. Body slender. Feet long and slender; tibia bare nearly half its length, scutellate before and behind; tarsus also scutellate before and behind; hind toe very small and elevated; fore toes rather long, very slender, connected at the base by webs, of which the outer is much larger; second or inner toe considerably shorter than fourth, third longest; all scutellate above, flat and marginate beneath. Claws small, slightly arched, much compressed, rather obtuse, that of middle toe much larger, with the inner edge enlarged.

Plumage very soft, blended, on the fore part of the head very short. Wings long, narrow, pointed; primaries rather narrow and tapering, first and second equal, the rest rapidly graduated; secondaries short, broad, incurved, obliquely rounded, the inner elongated and tapering. Tail rather short, slightly rounded, of twelve rounded feathers.

Bill greenish-black. Iris brown; edges of eyelids dark grey. Feet greenish-grey, claws brownish-black. Upper part of the head, lores, cheeks, hind neck and sides of the neck deep brownish-grey, the edges of the feathers brownish-white; a dull white line from the bill to the eye; upper part of throat greyish-white; fore-neck of the same colour, streaked with brownish-grey, as are the sides; the rest of the lower parts greyish-white. The general colour of the back and scapulars is deep greenish-brown, the feathers edged with a few small spots of white and dusky, those on the inner secondaries more numerous. Wing-coverts similar, excepting those along the edge of the wing, which with the alula and primary coverts are deep brownish-black; primary quills brownish-black, secondaries greyish-brown; lower wing-coverts mottled with brownish-black and white, the axillar feathers barred with greyish-white and dusky, as are the upper tail-coverts and the tail-feathers, of which the two middle are merely spotted with white on the edges.

Length to end of tail $8\frac{1}{2}$ inches, to end of wings 9, to end of claws 10; extent of wings $16\frac{1}{4}$; wing from flexure $5\frac{1}{4}$; tail 2; bill along the back $1\frac{2}{3}$, along the edge of lower mandible $1\frac{2}{3}$; tarsus $1\frac{2}{3}$; middle toe $1\frac{1}{2}$, its claw $\frac{2}{3}$. Weight $1\frac{3}{4}$ oz.

Adult Female. Plate CCLXXXIX. Fig. 2. :

There is no decided difference between the sexes in the colouring, but the female is somewhat larger. From the only instance in which I found this species in the act of depositing its eggs, I conclude that it generally forms its nest on the higher grounds or along the declivities of hills.

THE RED-BACKED SANDPIPER.

TRINGA ALPINA, LINN.

PLATE CCXC. MALE IN SUMMER, AND ADULT IN WINTER.

IN autumn and winter, this species is abundant along the whole range of our coast, wherever the shores are sandy or muddy, from Maine to the mouths of the Mississippi; but I never found one far inland. Sometimes they collect into flocks of several hundred individuals, and are seen wheeling over the water near the shores or over the beaches, in beautiful order, and now and then so close together as to afford an excellent shot, especially when they suddenly alight in a mass near the sportsman, or when, swiftly veering, they expose their lower parts at the same moment. On such occasions a dozen or more may be killed at once, provided the proper moment is chosen.

There seems to be a kind of impatience in this bird that prevents it from remaining any length of time in the same place, and you may see it scarcely alighted on a sand-bar, fly off without any apparent reason to another, where it settles, runs for a few moments, and again starts off on wing. When searching for food they run with great agility, following the retiring waves, and retreating as they advance, probing the wet sands, and picking up objects from their surface, ever jerking up the tail, and now and then uttering a faint cry, pleasant to the ear, and differing from the kind of scream which they emit while on wing.

When I was in the Floridas in winter, I found this species abundant, and my party shot a great number of them, on account of the fatness and juiciness of their flesh. They all appeared to have their plumage greyer than those shot in the Carolinas at the same season, and not one exhibited the least redness on the back, although that colour is so conspicuous in spring before they leave us for the north. They usually take their departure from the south about the first of April, reach the Middle Districts by the fifteenth of that month, and in a few days assume their summer plumage. I have observed that at this season the male birds are frequently in the habit of raising their wings and running in that position for a few steps, when they close them, and nod to the nearest female. None of the other sex, however, seemed to take the least notice of this homage. On

our way to Labrador we saw flocks of these birds passing, but we found none breeding in that country. My friend Mr MACGILLIVRAY has given me the following account of the habits of this species during the breeding season.

“ About the middle of April, the Purres betake themselves to the moors, in the northern parts of Scotland, and in the larger Hebrides, where they may be found scattered in the haunts selected by the Golden Plovers, with which they are so frequently seen in company that they have obtained the name of Plovers' Pages. In the Hebrides, from this season until the end of August, none are to be found along the shores. The nest is a slight hollow in a dry place, having a few bits of withered heath and grass irregularly placed in it. The eggs, four in number, are ovato-pyriform, an inch and four-twelfths in length, eleven-twelfths in breadth, oil-green or light greenish-yellow, irregularly spotted and blotched with deep brown, the spots becoming more numerous toward the larger end, where they are confluent. The young, like those of the Golden Plover and Lapwing, leave the nest immediately after exclusion, run about, and when alarmed, conceal themselves by sitting close to the ground and remaining motionless. If at this period, or during incubation, a person approaches their retreats, the male especially, but frequently the female also, flies up to meet the intruder, settles on a tuft near him, or runs along and uses the same artifices for decoying him from the nest or young as the Plover or Ring Dotterel. When the young are fledged, the birds gather into small flocks, which often in the evenings unite into larger, and join those of the Golden Plover. They rest at night on the smoother parts of the heath, and both species, when resting by day, either stand or lie on the ground. When one advances within a hundred yards of such a flock, it is pleasant to see them stretch up their wings as if preparing for flight, utter a few low notes, and immediately stand on the alert, or run a few steps. At this season, however, they are not at all shy. Towards the end of August, the different colonies betake themselves to the sandy shores. On a large sand-ford, in Harris, I have at this season seen many thousands at once, running about with extreme activity in search of food. This place seemed a general rendezvous, and after a few weeks the host broke up and dispersed, few if any remaining during the winter.”

TRINGA CINCLUS, *Linn. Syst. Nat.* vol. i. p. 251.—*Lath. Ind. Ornith.* vol. ii. p. 335.
Winter plumage.

TRINGA ALPINA, *Linn. Syst. Nat.* vol. i. p. 429.—*Lath. Ind. Ornith.* vol. ii. p. 736.—
Summer plumage.

TRINGA VARIABILIS, *Temm. Man. d'Ornith.* part ii. p. 612.

TRINGA ALPINA, *Ch. Bonaparte, Synops. of Birds of the United States*, p. 317.

RED-BACKED SANDPIPER, *TRINGA ALPINA*, *Wils. Amer. Ornith.* vol. vii. p. 5. pl. 56.
fig. 2. Summer.

PURR, *TRINGA CINCLUS*, *Wils. Amer. Ornith.* vol. vii. p. 39. pl. 57. fig. 3. Winter.

TRINGA ALPINA, *THE AMERICAN DUNLIN*, *Swains and Richards. Fauna Bor. Amer.*
part ii. p. 383.

DUNLIN OR OX-BIRD, *Nuttall, Manual*, vol. ii. p. 106.

Adult Male in Summer. Plate CCXC. Fig. 1.

Bill longer than the head, slender, subcylindrical, nearly straight, being slightly curved towards the end, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line nearly straight, slightly sloping at the base, and slightly decurved towards the end, the ridge narrow, towards the end flattened, at the point convex, sides sloping, edges rather blunt and soft. Nasal groove long, extending to near the point; nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line slightly concave, the sides sloping outwards, towards the end convex.

Head rather small, oblong, compressed. Eyes rather small. Neck of moderate length. Body rather full. Feet slender, of moderate length; tibia bare a considerable way up, anteriorly and posteriorly scutellate, as is the compressed tarsus; hind toe very small and elevated, anterior toes of moderate length, slender; inner toe slightly shorter than outer, middle toe considerably longer; all scutellate above, marginate with prominent papillæ, and free. Claws small, slightly arched, extremely compressed, blunt; edge of middle claw dilated and thin.

Plumage very soft, blended; on the back the feathers rather distinct. Wings long and pointed; primaries tapering, obtuse, the first longest, the second a little shorter, the rest rapidly graduated; secondaries rather short, obliquely cut at the end with a recurved blunt point, the inner elongated and tapering. Tail rather short, even, but with the two middle feathers considerably longer, of twelve feathers.

Bill and feet black. Iris dark brown. The upper part of the head, the back and the scapulars, are chestnut-red, each feather brownish-black

in the centre, and the scapulars barred with the same colour. The wing coverts greyish-brown, as are the quills, the bases and tips of the secondaries and part of the outer webs of the middle primaries white. Tail light brownish-grey, the two middle feathers darker. Forehead, sides of the head and hind neck, pale reddish-grey, streaked with dusky; fore neck and anterior part of breast greyish-white, streaked with dusky; on the breast a large patch of brownish-black; abdomen and lower tail-coverts white, the latter with dusky markings.

Length to end of tail $8\frac{1}{2}$ inches, to end of wings $8\frac{7}{8}$; extent of wings 15, wing from flexure $4\frac{1}{8}$; tail $2\frac{5}{8}$; bill along the ridge $1\frac{7}{8}$, along the edge of lower mandible $1\frac{4}{8}$; tarsus 1; middle toe $\frac{1}{8}$, its claw $\frac{9}{16}$. Weight 3 oz.

Adult in Winter. Plate CCXC. Fig. 2.

The bill, feet and eyes as above; the general colour of the upper parts is brownish-grey, varying in different individuals in intensity of tint. The wings and tail are as in summer. Throat greyish-white, sides of the head and neck, and fore part of the latter, pale brownish-grey, faintly streaked with darker, as are the sides; the rest of the lower parts white, with a few streaks on the breast.

LABRADOR.

WHEN I look back upon the many pleasant hours that I spent with the young gentlemen who composed my party, during our excursions along the coast of sterile and stormy Labrador, I think that a brief account of our employments may prove not altogether uninteresting to my readers.

We had purchased our stores at Boston, with the aid of my generous friend Dr PARKMAN of that city ; but unfortunately many things necessary on an expedition like ours were omitted. At Eastport in Maine we therefore laid in these requisites. No traveller, let me say, ought to neglect any thing that is calculated to ensure the success of his undertaking, or to contribute to his personal comfort, when about to set out on a long and perhaps hazardous voyage. Very few opportunities of replenishing stores of provision, clothing or ammunition, occur in such a country as Labrador ; and yet, we all placed too much confidence in the zeal and foresight of our purveyors at Eastport. We had abundance of ammunition, excellent bread, meat, and potatoes ; but the butter was quite rancid, the oil only fit to grease our guns, the vinegar too liberally diluted with cider, the mustard and pepper deficient in due pungency. All this, however, was not discovered until it was too late to be remedied. Several of the young men were not clothed as hunters should be, and some of the guns were not so good as we could have wished. We were, however, fortunate with respect to our vessel, which was a notable sailer, did not leak, had a good crew, and was directed by a capital seaman.

The hold of the schooner was floored, and an entrance made to it from the cabin, so that in it we had a very good parlour, dining-room, drawing-room, library, &c. all those apartments however, being, united into one. An extravagantly elongated deal table ranged along the centre ; one of the party had slung his hammock at one end, and in its vicinity slept the cook and a lad who acted as armourer. The cabin was small ; but being fitted in the usual manner with side berths, was used for a dormitory. It contained a small table and a stove, the latter of diminutive size, but smoky enough to discomfort a host. We had adopted in a great measure the clothing worn by the American fishermen on that coast, namely, thick blue cloth trowsers, a comfortable waistcoat, and a

pea-jacket of blanket. Our boots were large, round-toed, strong, and well studded with large nails to prevent sliding on the rocks. Worsted comforters, thick mittens, and round broad-brimmed hats, completed our dress, which was more picturesque than fashionable. As soon as we had an opportunity, the boots were exchanged for Esquimaux mounted mocassins of seal-skin, impermeable to water, light, easy, and fastening at top about the middle of the thigh to straps, which when buckled over the hips secured them well. To complete our equipment, we had several good boats, one of which was extremely light and adapted for shallow water.

No sooner had we reached the coast and got into harbour, than we agreed to follow certain regulations intended for the general benefit. Every morning the cook was called before three o'clock. At half-past three, breakfast was on the table, and every body equipt. The guns, ammunition, botanical boxes, and baskets for eggs or minerals, were all in readiness. Our breakfast consisted of coffee, bread, and various other materials. At four, all except the cook and one seaman, went off in different directions, not forgetting to carry with them a store of cooked provisions. Some betook themselves to the islands, others to the deep bays; the latter on landing wandered over the country, until noon, when laying themselves down on the rich moss, or sitting on the granite rock, they would rest for an hour, eat their dinner, and talk of their successes or disappointments. I often regret that I did not take sketches of the curious groups formed by my young friends on such occasions, and when, after returning at night, all were engaged in measuring, weighing, comparing and dissecting the birds we had procured, operations which were carried on with the aid of a number of candles thrust into the necks of bottles. Here one examined the flowers and leaves of a plant, there another explored the recesses of a diver's gullet, while a third skinned a gull or a grouse. Nor was our journal forgotten. Arrangements were made for the morrow, and at twelve we left matters to the management of the cook, and retired to our roosts.

If the wind blew hard, all went on shore, and, excepting on a few remarkably rainy days, we continued our pursuits much in the same manner during our stay in the country. The physical powers of the young men were considered in making our arrangements. SHATTUCK and INGALS went together; the Captain and COOLEGE were fond of each other, the latter having also been an officer; LINCOLN and my son being the strongest and most determined hunters, generally marched by themselves;

and I went with one or other of the parties according to circumstances, although it was by no means my custom to do so regularly, as I had abundance of work on hand in the vessel.

The return of my young companions and the sailors was always looked for with anxiety. On getting on board, they opened their budgets, and laid their contents on the deck, amid much merriment, those who had procured most specimens being laughed at by those who had obtained the rarest, and the former joking the latter in return. A substantial meal always awaited them, and fortunate we were in having a capital cook, although he was a little too fond of the bottle.

Our "fourth of July" was kept sacred, and every Saturday night the toast of "wives and sweethearts" was the first given, "parents and friends" the last. * Never was there a more merry set. Some with the violin and flute accompanied the voices of the rest, and few moments were spent in idleness. Before a month had elapsed, the spoils of many a fine bird hung around the hold; shrubs and flowers were in the press, and I had several drawings finished, some of which you have seen, and of which I hope you will ere long see the remainder. Large jars were filling apace with the bodies of rare birds, fishes, quadrupeds, and reptiles, as well as molluscous animals. We had several pets too, Gulls, Cormorants, Guillemots, Puffins, Hawks, and a Raven. In some of the harbours, curious fishes were hooked in our sight, so clear was the water.

We found that camping out at night was extremely uncomfortable, on account of the annoyance caused by flies and mosquitoes, which attacked the hunters in swarms at all times, but more especially when they lay down, unless they enveloped themselves in thick smoke, which is not much more pleasant. Once when camping, the weather became very bad, and the party was twenty miles distant from Whapatiguan as night threw her mantle over the earth. The rain fell in torrents, the north-east wind blew furiously, and the air was extremely cold. The oars of the boats were fixed so as to support some blankets, and a small fire was with difficulty kindled, on the embers of which a scanty meal was cooked. How different from a camp on the shores of the Mississippi, where wood is abundant, and the air generally not lacking heat, where mosquitoes, although plentiful enough, are not accompanied by carraboo flies, and where the barkings of a joyful squirrel, or the notes of the Barred Owl, that grave buffoon of our western woods, never fail to gladden the camper as he cuts to the right and left such branches and canes as most easily

supply materials for forming a lodging for the night ! On the coast of Labrador there are no such things ; granite and green moss are spread around, silence like that of the grave envelopes all, and when night has closed the dreary scene from your sight, the wolves, attracted by the scent of the remains of your scanty repast, gather around you. Cowards as they are, they dare not venture on a charge ; but their howlings effectually banish sleep. You must almost roast your feet to keep them warm, while your head and shoulders are chilled by the blast. When morning comes, she smiles not on you with rosy cheeks, but appears muffled in a grey mantle of cold mist, which shews you that there is no prospect of a fine day. The object of the expedition, which was to procure some Owls that had been observed there by day, was entirely frustrated. At early dawn, the party rose stiffened and dispirited, and glad were they to betake themselves to their boats, and return to their floating home.

Before we left Labrador, several of my young friends began to feel the want of suitable clothing. The sailors' ever-tailoring system was, believe me, fairly put to the test. Patches of various colours ornamented knees and elbows ; our boots were worn out ; our greasy garments and battered hats were in harmony with our tanned and weather-beaten faces ; and, had you met with us, you might have taken us for a squad of wretched vagrants ; but we were joyous in the expectation of a speedy return, and exulted at the thoughts of our success.

As the chill blast that precedes the winter's tempest thickened the fogs on the hills and ruffled the dark waters, each successive day saw us more anxious to leave the dreary wilderness of grim rocks and desolate moss-clad valleys. Unfavourable winds prevented us for a while from spreading our white sails ; but at last one fair morning smiled on the wintry world, the Ripley was towed from the harbour, her tackle trimmed, and as we bounded over the billows, we turned our eyes toward the wilds of Labrador, and heartily bade them farewell for ever !

THE HERRING GULL.

LARUS ARGENTATUS, BRUNN.

PLATE CCXCI. MALE.

ON the 22d of May 1833 I was kindly received with my party on board the United States' revenue-cutter the *Swiftsure*, commanded by Captain COOLEGE, and on the morning of the next day was landed on White Head Island, at the entrance of the Bay of Fundy. This island is the property of a worthy Englishman of the name of FRANKLAND, who received us with great hospitality, gave us leave to ransack his domains, and invited us to remain as long as we pleased. The Herring Gulls, he said, were breeding in great numbers, and we might expect good sport. We immediately set out in search of them, directing our course toward the pine woods, in which we were informed we should find them, and in approaching which we passed over an elevated marsh of great extent. As we came up to the place I observed that many of the Gulls had alighted on the fir-trees, while a vast number were sailing around, and when we advanced nearer, the former took to wing, abandoning their nests, and all flew about uttering incessant cries.

I was greatly surprised to see the nests placed on the branches, some near the top, others about the middle or on the lower parts of the trees, while at the same time there were many on the ground. It is true I had been informed of this by our captain, but I had almost believed that, on arriving at the spot, I should find the birds not to be gulls. My doubts, however, were now dispelled, and I was delighted to see how strangely Nature had provided them with the means of securing their eggs and young from their arch-enemy man. My delight was greatly increased on being afterwards informed by Mr FRANKLAND that the strange habit in question had been acquired by these gulls within his recollection, for, said he, "when I first came here, many years ago, they all built their nests on the moss and in open ground; but as my sons and the fishermen collected most of their eggs for winter use, and sadly annoyed the poor things, the old ones gradually began to put their nests on the trees in the thickest parts of the woods. The youngest birds, however, still have some on the ground, and the whole are becoming less wild since I have

forbidden strangers to rob their nests; for, gentlemen, you are the only persons out of my family that have fired a gun on White Head Island for several years past, and I daresay you will not commit any greater havoc among them than is necessary, and to that you are welcome."

I was much pleased with the humanity of our host, and requested him to let me know when all the Gulls, or the greater part of them, would abandon the trees and resume their former mode of breeding on the ground, which he promised to do. But I afterwards found that this was not likely to happen, because on some other islands not far distant, to which the fishermen and eggers have free access, these Gulls breed altogether on the trees, even when their eggs and young are regularly removed every year, so that their original habits have been entirely given up. My opinion that, after being thus molested for some time longer, they may resort to the inaccessible shelves of the high rocks of these islands, was strengthened by Mr FRANKLAND's informing me that many pairs had already taken refuge in such places, where they bred in perfect security. The most remarkable effect produced by these changes of locality is, that the young which are hatched on the trees or high rocks, do not leave their nests until they are able to fly, while those on the ground run about in less than a week, and hide themselves at the sight of man among the moss and plants, which frequently saves them from being carried away. The young on the trees are shaken out of their nests, or knocked down with poles, their flesh being considered as very good by the fishermen and eggers, who collect and salt them for winter provision.

Some of the nests which I saw were placed at a height of more than forty feet on the trees, others, seen in the thickest parts of the woods, were eight or ten feet from the ground, and were placed close to the main stem, so as to be with difficulty observed. It was truly curious to see the broad-winged birds make their way to and from them in these secluded retreats. The nests placed on the ground were several yards apart, and measured from fifteen to eighteen inches in diameter, their cavity being from four to six. The lower stratum consisted of grass, plants of various kinds, moss, and grey lichens, and the whole was lined with fine bent, but without any feathers. Those on the trees measured from twenty-four to twenty-six inches in diameter externally, and were composed of the same materials, but in greater quantity, the object of which I thought might be to allow more space to the young while growing, as they could not enjoy the pleasure of running about like those hatched on the ground. Per-

haps, however, the smaller size of the nests placed there may be owing to their belonging to the younger Gulls, as I have often observed that the older the individual the larger is its nest. Mr FRANKLAND informed me that they frequently repair the old nests at the commencement of the breeding season, and I found the assertion proved by my own observation. The eggs, which are three, measure three inches in length, by two in breadth, have an oval somewhat pyriform shape, are rough though not granulated, and are of a dull yellowish earthy colour, irregularly blotched and spotted with dark umber. They are nearly as large as those of the Great Black-backed Gull; but they differ considerably in size as well as in colour, some being more or less rounded or elongated. The yolk is bright orange, the albumen bluish-white; and they are excellent eating.

About the beginning of May the Herring Gulls collect into great flocks for the purpose of reproducing, and betake themselves to large sand-bars or mud-flats at low water, where their cacklings may be heard at a great distance. With the aid of a glass you may see them going through their courtships; the males swell their throats, walk about proudly, throw their heads upwards, and emit their love notes. These general meetings take place at all hours of the day, according to the state of the tide, and continue for about a fortnight, when they all depart and betake themselves to the islands on which they breed. Several of these are situated near the one mentioned, and there is one near Cape Sable, a few miles from the most southern point of Nova Scotia, on which we saw thousands alighted on the trees as we were sailing along that coast on our way to Labrador. Some individuals begin to lay about the 19th of May or a few days earlier, while others have not finished the process until the middle of June. During this period they resort at certain hours to bare rocky islets, on which they copulate. At White Head Island, while we were seated on the edge of a beautiful sand-bar eating our dinner, we saw, on one of these rocks, a vast number forming as it were a dense mass, which covered about half an acre. At twelve o'clock, we observed that all those which were not sitting on their eggs, flew over us and alighted on the sea, about half a mile from the shore, where they remained upwards of an hour, swimming gracefully but in silence all the while. A seal happening to raise its head above the water frightened them, and all raised their wings as if about to fly. Soon after they rose all at once, separated, and went off in search of food, but returned in less than an hour to the island, flying high and cackling loudly. A little before sunset all those unoccupied

with incubation went off to the same rocky islands to roost, flying in silence, and mostly in files. It was curious to observe that, whenever a large flock made towards the sea cackling, all the ducks about immediately flew off to a considerable distance, as if afraid of them; and we saw that these Gulls, although timorous in the presence of man, shew great courage in attacking predatory birds, such as Jays, Crows, Ravens, and even Hawks, which they pursued and forced into the deep woods, or drove away from the vicinity of their nests.

Shy and wary nearly in as great a degree as the Black-backed Gull, they were with difficulty obtained, unless we approached them under cover. The least noise made them instantly leave their perch, and although there were six of us, each furnished with a good gun, and some sufficiently expert, not more than a dozen were killed that day, and all of them while flying. The moment one started, it would sound an alarm, on which hundreds would rise and sail over us, at such a height that it was useless to shoot at them. Now and then, one accidentally passing low over the woods, was brought down. While returning in the evening we shot one at a great height, having merely broken the tip of its wing. Having caught it, we placed it on the narrow path, on which it ran before us nearly to the house of the Governor, as Captain FRANKLAND is called. It offered no resistance, but bit severely, and now and then lay down to rest for a few moments. It ran fast enough to keep several yards before us, cackling all the while, and once suddenly made off from the path at a rapid rate.

Their flight is as strong as that of the Great Black-backed Gull, but more buoyant as well as graceful. During the love season their aerial evolutions are extremely beautiful; they pass through the air in wide circlings, at a great height, and then come down in curious zigzags until near the tops of the trees, or the surface of the sea. While in pursuit of fish, they dart in curved lines with great rapidity, frequently wheeling suddenly when over their prey, and falling towards it. When travelling, they pass indifferently over the land or the water, but generally at a considerable height. Their food consists principally of herrings, of which they destroy great numbers, following the shoals. They also feed on other fishes of small size, shrimps, crabs, and shell-fish, as well as on young birds and small quadrupeds, and suck all the eggs they can find. The rocky shores of the islands on which I found them breeding are covered with multitudes of sea-urchins, having short greenish spines, which give

them the semblance of a ball of moss. At low water the Herring Gulls frequently devour these animals, thrusting their bill through the shell, and sucking its contents. They also take up shells in the air, and drop them on the rocks to break them. We saw one that had met with a very hard mussel, take it up and drop it three times in succession, before it succeeded in breaking it, and I was much pleased to see the bird let it fall each succeeding time from a greater height than before. They seem to go out to sea in search of food at particular periods, setting out at the first ebb and returning to the shore as the tide rises.

The young are at first fed chiefly with shrimps and other small crustacea, which are picked up from the mud-bars or along the shores. They are then of a deep rusty colour all over, and when fully feathered they retain a good deal of that hue, but the feathers are edged with light grey or brown; the feet and legs are of a greenish-blue colour, inclining to purple; the bill dusky or nearly black. In spring they acquire their full size, but still retain the grey and rusty plumage. The next year they shew much light ash-grey and white about the head, neck, and lower parts, the orange spot appears on the bill, the feet and legs are flesh-coloured, the tail still partially banded towards the extremity. At this age, however, I believe they breed, as I observed some coloured in the manner described, mated with older birds. The third spring they acquire the colouring represented in the plate.

I found no other species breeding on the same islands. Old and young associate together all the year round, excepting during the breeding season, when the latter separate and pursue their avocations together. The cry or cackling of this species, which is heard at a considerable distance, may be imitated by pronouncing the syllables *har, hac, hac, cah, cah, cah*.

The Herring Gull has a greater range of migration along our coast and in the interior than any other American species. I have found it on our great lakes, and on the Ohio, Missouri and Mississippi, down to the Gulf of Mexico, during the autumnal months, and in winter along the shores of the latter, and all our eastern coasts. It may be said to be resident in the United States, as it breeds from off Boston to Eastport in Maine; but the greater number go farther north. We found the nests of some on the bare rocks of the Seal Islands off Labrador, but not on the coast itself. They were composed of dry plants and moss brought from the mainland. The birds kept by themselves, and appeared to be completely

mastered by the Great Black-backed Gulls. On our return we saw old and young on the northern coast of Newfoundland, and on the different bays over which we passed.

I have represented an adult male, but not one of the largest, and a young bird shot in winter, which I have placed on a bunch of Racoon oysters, where it was standing when shot.

LARUS ARGENTATUS, Temm. Man. d'Ornith. part ii. p. 764.

LARUS ARGENTATUS, Ch. Bonaparte, Synopsis of Birds of the United States, p. 360.

LARUS ARGENTATOIDES, *Ibidem*.

Adult Male in spring. Plate CCXCI. Fig. 1.

Bill shorter than the head, robust, compressed, higher near the end than at the base. Upper mandible with the dorsal line nearly straight at the base, declinate and arched towards the end, the ridge convex, the sides slightly convex, the edges sharp, inflected, arcuato-declinate towards the end, the tip rather obtuse. Nasal groove rather long and narrow; nostril in its fore part, lateral, longitudinal, linear-oblong, wider anteriorly, pervious. Lower mandible with the angle long and narrow, the outline of the crura curved, the dorsal line beyond the prominence slightly concave, the sides erect and nearly flat, the edges sharp and inflected.

Head rather large, oblong, narrowed anteriorly. Neck of moderate length, strong. Body full. Feet of moderate length, rather slender; tibia bare below; tarsus somewhat compressed, covered anteriorly with numerous scutella, laterally with angular scales, behind with numerous small rectangular scales; hind toe very small and elevated, the fore toes of moderate length, rather slender, the fourth longer than the second, the third longest, all scutellate above, and connected by reticulated entire membranes, the lateral toes margined externally with a thick narrow membrane. Claws small, slightly arched, depressed, rounded, that of the middle toe with an expanded thin inner margin.

The plumage in general is close, full, elastic, very soft and blended, on the back rather compact. Wings very long, broad, acute, the first and second quills nearly equal, the rest of the primaries rather rapidly graduated; secondaries broad and rounded, the inner narrower. Tail of moderate length, even, of twelve rounded feathers.

Bill gamboge-yellow, with a large orange-red patch inclining to carmine towards the end of the lower mandible. Edges of eyelids gamboge; iris silvery white. Feet flesh-coloured; claws brownish-black. The head, neck, lower parts, rump and tail, are pure white; the back and wings

pearl-grey or light bluish-grey, very slightly tinged with purple; the edges of the wing and the extremities of all the quills, are white. The first six quills are brownish-black towards the end, that colour including the outer webs and the greater part of the inner of the two first, and on the rest gradually diminishing, so as on the sixth merely to form a bar; first quill with a patch of white about an inch and a half long on both webs near the end; second with a circular white patch on the inner web, the tips of all white.

Length to end of tail 23 inches, to end of wings $24\frac{1}{2}$, to end of claws $21\frac{1}{2}$; extent of wings 53; wing from flexure 18; tail $7\frac{1}{2}$; bill along the ridge $2\frac{1}{2}$, along the edge of lower mandible 3; its depth at the angle $\frac{3}{4}$; tarsus $2\frac{1}{2}$; middle toe $2\frac{1}{4}$, its claw $\frac{1}{2}$. Weight 1 lb. 10 oz.

The Female is similar to the male, but somewhat less.

Young in November. Plate CCXCI. Fig. 2.

Bill brownish-black, paler at the base of the lower mandible. Edges of eyelids greenish-grey; iris hazel. Feet purplish flesh-colour; claws brownish-black. The general colour of the whole plumage is light purplish-grey, the upper part of the head darker, the lower parts minutely mottled with pale yellowish-grey; the feathers of the upper parts, and the upper tail-coverts, irregularly edged and barred with greyish-white. Primary quills greyish-brown, their inner webs paler, their tips whitish; tail of the same colour, its base and outer webs of lateral feathers irregularly mottled with whitish, the tips brownish-white.

Length to end of tail $18\frac{3}{4}$ inches, to end of wings 20; extent of wings 51; wing from flexure 16; tail 6; bill along the ridge 2, along the edge of lower mandible $2\frac{1}{2}$; tarsus $2\frac{1}{4}$; middle toe 2, its claw $\frac{1}{2}$. Weight 22 oz.

From the examination of individuals of this species, it would appear that little reliance can be placed on the markings of the quills as affording a specific character. Four undoubted specimens of *Larus argentatus* now before me, have a white spot, varying in length from one to two inches, and including both webs, near the end of the *first* quill. One has no spot on the *second* quill; another has a spot on both webs of the *second* quill of one wing, and a smaller spot on part of the inner web of the same quill of the other wing; the third has a very small spot on part of the inner web of the same quill of both wings; the fourth has a large circular spot on the inner web of that quill also in both wings.

THE CRESTED GREBE.

PODICEPS CRISTATUS, LATH.

PLATE CCXCII. MALE AND FEMALE.

THIS beautiful species returns from its northern places of residence, and passes over the Western Country, about the beginning of September. A few remain on the lower parts of the Ohio, on the Mississippi, and the lakes in their neighbourhood, but the greater number proceed towards the Mexican territories. They pass swiftly through the air, at a height of about a hundred yards, in flocks of from seven or eight to fifty or more, proceeding in a loose body, and propelling themselves by continued flap-pings, their necks and feet stretched out to their full length. I have observed them thus passing in autumn, for several years in succession, over different parts of the Ohio, at all hours of the day. On such occasions I could readily distinguish the old from the young, the former being in many instances still adorned with their summer head-dress. I never saw this species near the sea-coast, where, on the contrary, I have met with the Red-necked Grebe.

When about to alight on the water, these birds glide swiftly downward, with their wings half-closed, and produce a sound not unlike that of a hawk stooping towards its prey. Their velocity is so great at this moment, that on alighting, they glide on the surface of the water for twenty or thirty yards, leaving a furrow in their wake. In a few moments they are all engaged in washing and cleaning themselves, after which they dive in pursuit of the fishes on which they feed, and which they secure by following them in the manner of Divers and Cormorants. They are exceedingly quick-sighted, and frequently elude by diving the shot intended for their destruction, seldom after being chased raising more than their bill above the water, but rarely making for the shore unless when nearly exhausted.

When in ponds, they may easily be caught with fishing hooks placed on lines near the bottom; but if the lines are not closely attended to, or held from a place of concealment, where you may feel that they are hooked, and at once haul them out, the birds drown in a very short time. On catching two or three in this manner, I found the pond deserted the fol-

lowing morning and for several days after. They very rarely fly in your presence, and they leave the ponds at night. If forced to rise on wing, they run paddling on the water for several yards before they rise, and fly several times round a pond of thirty or forty yards before they attain the level of the tree-tops, for they never fly through the woods. When once high in the air, they move in a direct course and with speed, towards some other pond or the nearest river. I do not remember to have ever met with a bird of this species on a narrow creek or bayou, or on muddy waters; and on the Ohio's rising I have observed that they abandon the river and betake themselves to the clear ponds of the interior.

By the 1st of October, scarcely any difference can be perceived between the young and the old birds with respect to plumage, only the latter have the under surface of the wings still dashed with the reddish colour of the summer dress. I am not able to say from observation how long the young are in attaining maturity; but European writers assert that they take three or four years. When these birds leave the southern waters about the beginning of April, the old already shew their summer head-dress, but seldom have it so perfect as is represented in the plate.

The food of this species consists of fishes, aquatic insects, and small reptiles, together with the seeds of water plants. Dr RICHARDSON states that these birds are abundant in all the secluded lakes of the mountainous districts of the fur countries, and adds that their nests are formed of a large quantity of grass, placed among reeds and carices, and rise and fall with the water. Mr YARBELL has kindly furnished me with specimens of the eggs, which are generally four, measure two inches and a quarter in length by one inch and a half, have an oval form, and a smooth surface, of a uniform yellowish-white colour.

PODICEPS CRISTATUS, Lath. Ind. Ornith. vol. ii. p. 780.—*Ch. Bonaparte*, Synopsis of Birds of the United States, p. 417.

CRESTED GREBE, OR GAUNT, *Nuttall*, Manual, vol. ii. p. 250.

Adult Male in spring. Plate CCXCII. Fig. 1.

Bill about the length of the head, straight, compressed, tapering. Upper mandible with the dorsal line straight, slightly declinate towards the tip, the ridge convex, the sides convex, the edges sharp and inflected, the tip rather sharp. Nasal groove rather wide, extending to nearly half the length of the mandible; nostrils linear-elliptical, basal, rather small, pervious. Lower mandible with the angle long and extremely narrow;

dorsal line beyond it ascending and straight, sides erect, slightly convex, tip acuminate, edges sharp.

Head of moderate size, oblong, compressed. Neck long, slender. Body long and depressed. Feet short, large, placed close to the extremity of the body; tibia feathered to the joint; tarsus extremely compressed; its anterior edge with a row of small scutella, the sides with broad scutella, behind which are some irregular scales, the posterior ridge with a double line of small prominent scales; first toe very small with a posterior membrane, fourth longest; the toes scutellate above, connected at the base by a membrane, and having on both sides an expanded web-like margin marked with oblique lines, and having a crenated edge. Claws flat, that of third toe broadest.

Plumage very soft, blended, on the lower parts silky, on the back glossy and rather compact. Two tufts of elongated feathers on the occiput, and a large frill on the sides and anterior portion of the neck at its upper part. Wings small, acute; primaries much curved, second longest, first almost equal, the rest rapidly graduated; secondaries short, rounded. Tail a slight tuft of loose feathers.

Bill blackish-brown tinged with carmine; bare loreal space dusky green, as is the edge of the eyelids. Iris bright carmine. Feet greenish-black, the webs greyish-blue. Upper part of the head and tufts greyish-black tinged with green, as is the hind part of the ruff, its anterior part being brownish-red; sides of the head and the throat white; fore neck white tinged with brown; breast silvery white, sides reddish-brown with dusky streaks; the upper parts are brownish-black, the feathers edged with lighter, the sides of the neck tinged with reddish, as is the rump. Wing-coverts greyish-brown, primary quills brownish-black, tips of the inner white, the middle secondaries white.

Length to end of tail 24 inches, to end of wings 21, to end of claws 29; extent of wings 33; wing from flexure $7\frac{1}{2}$; bill along the ridge 2, along the edge of lower mandible $2\frac{1}{2}$; tarsus $2\frac{1}{2}$; third toe $\frac{3}{4}$, its claw $\frac{1}{2}$. Weight 2 lb. 9 oz.

Adult Female in spring. Plate CCXCII. Fig. 2.

The Female has the occipital feathers a little elongated, but wants the ruff on the neck. Bill dusky green; bare loreal space, edges of eyelids, and iris, as in the male. Upper part of head and hind neck blackish-grey; back and wings as in the male, but more tinged with grey; lower parts silvery white, the sides under the wings dusky.

Length to end of tail $19\frac{1}{2}$, to end of claws $24\frac{1}{2}$; extent of wings 30; bill along the back $2\frac{1}{2}$, along the edge of lower mandible $2\frac{1}{2}$; tarsus $2\frac{1}{2}$; third toe $2\frac{1}{2}$, its claw $\frac{1}{2}$. Weight 1 lb. $6\frac{1}{2}$ oz.

The following account of the digestive organs of this species was taken from an adult male.

The œsophagus is nine and a half inches long; at its commencement, and for an inch and a half, it has a diameter of half an inch, for the next two inches only two-twelfths, towards the lower extremity four-twelfths; this, however, in the contracted state, the specimen having been kept in spirits. The mucous coat is raised into numerous longitudinal folds.

The walls of the proventriculus are extremely thick, the glands cylindrical, generally about a quarter of an inch long, and one-twelfth in diameter. The stomach is roundish, compressed, the muscular coat very thick, being that of a true gizzard, the tendons nearly half an inch in diameter; the inner coat thick, the cuticular lining very thick and rugous.

Between the orifice of the œsophagus and the pylorus is a rounded lobe, from the lower part of which the intestine comes off. The pylorus has no valve, but a thick marginal rim. The intestine, immediately after its commencement, dilates to the diameter of half an inch, and continues of that size for twelve inches, then gradually contracts for about six inches, when its diameter is four-twelfths, and again within six inches of the cœca becomes enlarged. The cœca come off at the distance of two inches from the anus, and are an inch and a half in length, a little enlarged towards their extremity, and rounded. The rectum is half an inch in diameter, the cloaca one inch. The entire length of the intestine is forty-two inches.

The heart is conical, rather pointed, and slightly curved. The trachea is flattened, of uniform diameter, the rings complete, 167 in number, its transverse diameter two inches and half a twelfth, contracted at the bifurcation to two-twelfths.

The tail of the Grebes is usually described as a small tuft of feathers; but on carefully removing the coverts and downy parts, the tail may be satisfactorily traced. In this species there are 14 feathers, on each side 7 arranged in a semicircular manner. The two middle feathers are separated to the distance of about $\frac{1}{12}$, and the two outer or lateral approach each other below, leaving an interval of about the same space. When the feathers are broken across near their bases, which they frequently are, there is thus produced the appearance of a small circular tuft. When perfect, they are about $1\frac{1}{2}$ inches long, arched, with loose barbs, downy at their extremities.

THE LARGE-BILLED PUFFIN.

MORMON GLACIALIS, LEACH.

PLATE CCXCIII. MALE.

ALTHOUGH my learned friend Prince CHARLES BONAPARTE says in his Synopsis of the Birds of the United States, that this species is not uncommon in winter on our coast, I have only once met with it, and even then I rather supposed than was actually certain that the birds observed were Large-billed Puffins. They occurred on the outer side of the Island of Grand Manan, at the entrance of the Bay of Fundy. None were seen by myself or my companions on our way to Labrador, or in that country, so that I am unable to say any thing respecting the habits of this remarkable bird. The specimens from which my figures were taken were kindly lent to me by Mr GOULD of London, whose name must be familiar to you as a successful cultivator of Ornithology.

MORMON GLACIALIS, Ch. Bonaparte, Synops. of Birds of the United States, p. 430.

LARGE-BILLED PUFFIN, Nuttall, Manual, vol. ii. p. 541.

Adult Male. Plate CCXCIII. Fig. 1.

Bill about the length of the head, nearly as high as long, exceedingly compressed, at the base higher than the head, obliquely furrowed on the sides. Upper mandible with a horny rim along the incurved basal margin, its dorsal line irregularly curved from the base, the ridge very narrow but rounded, the sides rapidly sloping, and marked with three curved oblique grooves, the edges strong, rather sharp, their outline nearly straight, the tip deflected, very narrow, but obtuse. Between the basal rim and the first groove is a triangular flat space, in the lower part of which, close to the edge of the mandible, is the linear direct nostril. Lower mandible with the angle narrow, and so placed that the base is inflected much beyond the perpendicular, the dorsal line irregularly curved, towards the end ascending and nearly straight, the ridge narrow, broader about the middle, the sides nearly flat and grooved, the edges strong, the tip very narrow. The gape extends downwards a little beyond the base of the bill, and is furnished with a soft corrugated extensible membrane.

Head large, oblong, anteriorly compressed. Eyes of moderate size,

with bare orbits ; over the upper eyelid an oblong, tapering horny body directed upwards and backwards, on the lower a linear body of a similar nature over its whole length. Neck short and thick. Body full and rounded. Feet short, rather stout ; tibia bare for a short space above the joint. Tarsus very short, little compressed, anteriorly for three-fourths of its length with a series of small scutella, the rest with reticular angular scales. Hind toe wanting, toes rather long, and slender, scutellate above, connected by reticulated entire membranes, the third and fourth toes about equal, the second considerably shorter, with a narrow marginal web. Claws strong, of moderate length, compressed, arched, that of the inner toe much curved and acute.

Plumage close, blended, soft, very short on the head. Wings curved, short, narrow, acute. Primary quills tapering, incurved, the first longest, the second a little shorter, the rest regularly graduated ; secondaries very short and rounded. Tail very short, much rounded, of sixteen rounded feathers.

Bill bright orange-red, soft edges of mouth gamboge. Edges of eyelids orange-red ; the iris and horny appendages light blue. Feet orange-red, with the webs paler, the claw yellowish-brown. The sides of the head and the lower parts in general, white ; upper part of the head light brownish-grey tinged with lilac ; a broad collar extending to the lower mandible, of a dark greyish-brown tint below, and gradually passing into the colour of the upper parts, which is brownish-black, glossed with blue ; primary quills and their coverts blackish-brown, very slightly margined with paler.

Length to end of tail 13 inches, to end of claws 14 ; to end of wings $12\frac{1}{2}$; extent of wings $24\frac{1}{2}$; bill along the ridge $2\frac{1}{4}$; along the edge of lower mandible $1\frac{5}{8}$; depth of bill at the base $1\frac{1}{2}$, its greatest diameter $\frac{5}{8}$; tarsus $1\frac{3}{8}$; middle toe $1\frac{1}{4}$, its claw $\frac{1}{2}$.

Adult Female. Plate CCXCIII. Fig. 2.

The Female is precisely similar to the Male.

THE PECTORAL SANDPIPER.

TRINGA PECTORALIS, BONAP.

PLATE CCXCIV. MALE AND FEMALE.

THIS Sandpiper is not uncommon along the shores of our Eastern States in autumn and winter. It has also lately been found in England, and I have seen a specimen of it in the possession of WILLIAM YARRELL, Esq. of London, who received it from a person who had shot it not far from the metropolis. I first met with this species in the immediate vicinity of Dennisville, in the State of Maine, feeding on the rocky bars of the river at low water. In the neighbourhood of Boston it is more abundant than elsewhere. Mr NUTTALL states, that "they are killed in abundance on the shores of Cohasset, and other parts of Massachusetts Bay and are brought in numbers to the market of Boston, being very fat and well-flavoured." "They arrive," he adds, "in flocks about the close of August, and continue there, as well as in New Jersey, till the month of September. In some instances solitary individuals have been killed in the marshes of Charles River, in Cambridge, about the 22d of July these were in company with flocks of small Sandpipers (*T. Wilsonii*), but whether pairs may perhaps breed in the neighbouring marshes or no we have not had the means of ascertaining. While here, they feed on small coleoptera, larvæ, and the common green *Ulva latissima*, as well as some species of fucus or sea-weed, on which they become fat. They utter a low plaintive whistle when started, very similar to that of other species. Like the Snipe they seem fond of damp meadows and marshes, and solitary individuals are often surprised by the sportsman in the manner of that bird."

I have observed that the flight of the Pectoral Sandpiper resembles that of the Knot, and is firm, rapid, and well sustained. It skims rather low over the surface of the water or the land, and at times shoots high up into the air, propelling itself with double rapidity and in perfect silence. It runs with great agility, and probes the sand or wet earth, inserting its bill up to the base. I never saw this species in any part of the interior. Its places of resort during the breeding season, and the changes of plumage which it undergoes, are unknown.

TRINGA PECTORALIS, PECTORAL SANDPIPER, *Ch. Bonaparte*, Synopsis of Birds of the United States, p. 318.

PECTORAL SANDPIPER, *TRINGA PECTORALIS*, *Ch. Bonaparte*, Amer. Ornith. vol. iv. pp. 43. pl. 23. fig. 2.—*Nuttall*, Manual, vol. II. p. 111.

Adult Male in Summer. Plate CCXCIV. Fig. 1.

Bill rather longer than the head, slender, subcylindrical, straight, flexible, compressed at the base, the point rather depressed and obtuse. Upper mandible with the dorsal line straight, slightly decurved towards the end, the ridge convex, towards the end a little flattened, at the point convex, the sides sloping, the edges rather blunt and soft. Nasal groove extending to near the tip; nostrils basal, linear, pervious. Lower mandible with the angle long and very narrow, the dorsal line straight, the sides nearly erect, with a long narrow groove, the tip a little broader but tapering.

Head of moderate size, oblong, compressed. Eyes rather large. Neck of moderate length. Body rather slender. Feet of moderate length, slender; tibia bare for a considerable length; tarsus compressed, anteriorly and posteriorly with numerous small scutella; hind toe very small; the rest rather long, slender, the fourth slightly longer than the second, the third longest, all free, scutellate above, flat beneath, slightly marginate; claws rather small, slightly arched, compressed, acute, that of third toe much larger, with the inner edge dilated.

Plumage very soft, blended beneath, slightly distinct above. Wings long and pointed; primaries tapering, obtuse, the first longest, the second considerably shorter, the rest regularly graduated; outer secondaries short, obliquely rounded, the inner elongated and tapering. Tail of twelve feathers, rather short, nearly even, but with the middle feathers much longer and pointed, the rest rounded.

Bill dull olive-green, dusky towards the point. Iris hazel. Feet dull yellowish-green; claws dusky. Upper part of the head reddish-brown, the central part of each feather brownish-black; a faint whitish line from the bill to a little beyond the eye; lores dusky; sides of the head and anterior and lateral parts of the neck, with a portion of the breast, light brownish-grey, marked with dark brown lines; chin and the rest of the lower parts white. The feathers on the upper parts are brownish-black, edged with reddish-brown, those on the wings lighter, primary quills dusky; the outer secondaries tinged with grey, the inner like the feathers

of the back. Tail-feathers light brownish-grey, slightly margined and tipped with white, the two central dark like the back.

Length to end of tail $9\frac{1}{4}$ inches, to end of wings $9\frac{1}{4}$; to end of claws $10\frac{1}{2}$; extent of wings 18; wing from flexure $5\frac{1}{2}$; tail $2\frac{7}{8}$; bill along the ridge $1\frac{1}{4}$, along the edge of lower mandible $1\frac{3}{4}$; bare part of tibia $\frac{5}{8}$, tarsus $1\frac{1}{4}$, middle toe $\frac{7}{8}$, its claw $\frac{1}{8}$. Weight 6 oz.

Adult Female in summer. Plate CCXCIV. Fig. 2.

The Female, which is a little larger, is similar to the male.

THE MANKS SHEARWATER.

PUFFINUS ANGLORUM, RAY.

PLATE CCXCV. ADULT.

ALTHOUGH I have procured this species to the westward of the banks of Newfoundland, or between their soundings and the American coast, I am unable to say any thing of importance respecting its habits as observed by myself. This species formerly inhabited a small islet close to the Isle of Man, but appears to have now entirely deserted it. In the Orkneys, however, it is still abundant, and the eggs and young are in much request there. It arrives in March, and, when the young are able to fly, betakes itself to the open sea, disappearing towards the approach of winter. The British writers who have described it inform us, that it stands nearly erect, flies with great rapidity, feeds on marine animal substances of all kinds, and, when taken, squirts out an oily fluid from its nostrils in the manner of the Petrels. It is said to breed in burrows, and to lay only a single egg, of a white colour, and elliptical form, about the size of that of a domestic fowl.

PROCELLARIA PUFFINUS, *Linn. Syst. Nat.* vol. i. p. 213.—*Lath. Ind. Ornith.* vol. ii. p. 824.

PUFFINUS ANGLORUM, *Ch. Bonaparte, Synops. of Birds of the United States*, p. 371.

SHEARWATER PETREL, *Nuttall, Manual*, vol. ii. p. 336.

Adult. Plate CCXCV.

Bill about the length of the head, rather slender, a little compressed, straightish, the tip curved. Upper mandible with the dorsal line convex, and sloping at the base, afterwards slightly concave, on the unguis curved, the ridge broadly convex, narrowed towards the end, the sides convex, the edges sharp and slightly inflected; the unguis stout, curved, rather acute. Nostrils tubular, approximated, dorsal; the narrow nasal groove extending to the unguis. Lower mandible with the angle very long and narrow, the short dorsal line beyond it decurved, the sides convex and sloping inwards, the edges sharp and inflected.

Head of moderate size, ovate, narrowed before. Neck of moderate

length. Body elongated. Feet of moderate size ; tibia feathered to near the joint ; tarsus compressed, anteriorly and posteriorly sharp, covered all over with diversiform scales, of which a series on the inner side is scutelliform. Toes rather long, slender, excepting the first, which is a mere conical knob principally composed of the claw ; anterior toes connected by striated webs of which the margin is concave, scutellate above, the third and fourth longest and about equal. Claws small, compressed, slightly arched, obtuse, that of third toe with the inner edge a little dilated.

Plumage dense, soft, blended, on the upper parts rather compact. Feathers of the fore part of the head very short. Wings long, sharp ; primaries tapering, rounded ; first longest, the rest regularly graduated ; secondaries rather short, rounded. Tail rounded, of twelve feathers.

Bill deep greenish-black. Iris dark brown. Inner and middle of outer side of tibia dingy orange, the rest greenish-black, as is the fourth toe and outer side of the third, the inner side of the latter and the whole of the second dingy orange ; the webs much paler ; claws brownish-black. All the upper parts are brownish-black, the lower white.

Length to end of tail 15 inches, to end of wings $15\frac{1}{2}$, to end of claws 16 ; extent of wings 32 ; wing from flexure $9\frac{1}{2}$; tail $3\frac{1}{2}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $1\frac{1}{4}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{2}$. Weight 15 oz.

The Female is similar to the male.

GREAT EGG HARBOUR.

SOME years ago, after having spent the spring in observing the habits of the migratory warblers and other land birds, which arrived in vast numbers in the vicinity of Camden in New Jersey, I prepared to visit the sea shores of that State, for the purpose of making myself acquainted with their feathered inhabitants. June had commenced, the weather was pleasant, and the country seemed to smile in the prospect of bright 'days and gentle gales. Fishermen gunners passed daily between Philadelphia and the various small sea-ports, with Jersey wagons, laden with fish, fowls and other provisions, or with such articles as were required by the families of those hardy boatmen; and I bargained with one of them to take myself and my baggage to Great Egg Harbour.

One afternoon, about sunset, the vehicle halted at my lodgings, and the conductor intimated that he was anxious to proceed as quickly as possible. A trunk, a couple of guns, and such other articles as are found necessary by persons whose pursuits are similar to mine, were immediately thrust into the wagon, and were followed by their owner. The conductor whistled to his steeds and off we went at a round pace over the loose and deep sand that in almost every part of this State forms the basis of the roads. After a while we overtook a whole caravan of similar vehicles moving in the same direction, and when we got near them our horses slackened their pace to a regular walk, the driver leaped from his seat, I followed his example, and we presently found ourselves in the midst of a group of merry wagoners, relating their adventures of the week, it being now Saturday night. One gave intimation of the number of "Sheep-heads" he had taken to town, another spoke of the Curlews which yet remained on the sands, and a third boasted of having gathered so many dozens of Marsh Hen's eggs. I inquired if the Fish Hawks were plentiful near Great Egg Harbour, and was answered by an elderly man, who with a laugh asked if I had ever seen the "Weak fish" along the coast without the bird in question. Not knowing the animal he had named, I confessed my ignorance, when the whole party burst into a loud laugh, in which, there being nothing better for it, I joined.

About midnight the caravan reached a half-way house, where we rested a while. Several roads diverged from this spot, and the wagons

separated, one only keeping us company. The night was dark and gloomy, but the sand of the road indicated our course very distinctly. Suddenly the galloping of horses struck my ear, and on looking back we perceived that our wagon must in an instant be in imminent danger. The driver leaped off, and drew his steeds aside, barely in time to allow the runaways to pass without injuring us. Off they went at full speed, and not long after their owner came up panting, and informed us that they had suddenly taken fright at some noise proceeding from the woods, but hoped they would soon stop. Immediately after we heard a crash ; then for a few moments all was silent ; but the neighing of the horses presently assured us that they had broken loose.. On reaching the spot, we found the wagon upset, and a few yards farther on were the horses quietly browsing by the road side.

The first dawn of morn in the Jerseys in the month of June, is worthy of a better description than I can furnish, and therefore I shall only say that the moment the sunbeams blazed over the horizon, the loud and mellow notes of the Meadow Lark saluted our ears. On each side of the road were open woods, on the tallest trees of which I observed at intervals the nest of a Fish Hawk, far above which the white-breasted bird slowly winged its way, as it commenced its early journey to the sea, the odour of which filled me with delight. In half an hour more, we were in the centre of Great Egg Harbour.

There I had the good fortune to be received into the house of a thorough bred fisherman-gunner, who besides owning a comfortable cot only a few hundred yards from the shore, had an excellent woman for a wife, and a little daughter as playful as a kitten, though as wild as a sea-gull. In less than half an hour, I was quite at home, and the rest of the day was spent in devotion.

Oysters, though reckoned out of season at this period, are as good as ever when fresh from their beds, and my first meal was of some as large and white as any I have eaten. The sight of them placed before me on a clean table, with an honest and industrious family in my company, never failed to afford more pleasure than the most sumptuous fare under different circumstances ; and our conversation being simple and harmless, gaiety shone in every face. As we became better acquainted, I had to answer several questions relative to the object of my visit. The good-man rubbed his hands with joy as I spoke of shooting and fishing, and of long excursions through the swamps and marshes around.

My host was then, and I hope still is, a tall strong-boned muscular man, of dark complexion, with eyes as keen as those of the Sea-eagle. He was a tough walker, laughed at difficulties, and could pull an oar with any man. As to shooting, I have often doubted whether he or Mr EGAN, the worthy pilot of Indian Isle, was best ; and rarely indeed have I seen either of them miss a shot.

At day-break on Monday, I shouldered my double-barrelled gun, and my host carried with him a long fowling-piece, a pair of oars, and a pair of oyster-tongs, while the wife and daughter brought along a seine. The boat was good, the breeze gentle, and along the inlets we sailed for parts well known to my companions. To such naturalists as are qualified to observe many different objects at the same time, Great Egg Harbour would probably afford as ample a field as any part of our coast, excepting the Florida Keys. Birds of many kinds are abundant, as are fishes and testaceous animals. The forests shelter many beautiful plants, and even on the driest sand-bar you may see insects of the most brilliant tints. Our principal object, however, was to procure certain birds known there by the name of Lawyers, and to accomplish this we entered and followed for several miles a winding inlet or bayou, which led us to the interior of a vast marsh, where after some search we found the birds and their nests. Our seine had been placed across the channel, and when we returned to it the tide had run out and left in it a number of fine fishes, some of which we cooked and ate on the spot. One, which I considered as a curiosity, was saved and transmitted to Baron CUVIER. Our repast ended, the seine was spread out to dry, and we again betook ourselves to the marshes, to pursue our researches until the return of the tide. Having collected enough to satisfy us, we took up our oars, and returned to the shore in front of the fisherman's house, where we dragged the seine several times with success.

In this manner I passed several weeks along those delightful and healthy shores, one day going to the woods to search the swamps in which the Herons bred, passing another amid the joyous cries of the Marsh Hens, and on a third carrying slaughter among the White-breasted Sea Gulls, by way of amusement sometimes hauling the fish called the Sheep-head from an eddy along the shore, or watching the gay Terns as they danced in the air, or plunged into the waters to seize the tiny fry. Many a drawing I made at Great Egg Harbour, many a pleasant day I spent along its shores; and much pleasure would it give me once more to visit the good and happy family in whose house I resided there.

THE BARNACLE GOOSE.

ANSER LEUCOPSIS, BECHST.

PLATE CCXCVI. MALE AND FEMALE.

SEVERAL old gunners on the coast of Massachusetts and Maine, who were Englishmen by birth, assured me that they had killed Barnacles there, and that these birds brought a higher price in the markets than the Common Brent Geese. The Prince of Musignano states in his Synopsis that they are very rare and accidental in the United States, and Mr NUTTALL says that they are "mere stragglers" there. For my part, I acknowledge that I never met with one of them, either along the coast or in the interior, although I have seen beautiful mounted specimens in various parts. Being neither anxious to add to our Fauna, nor willing unnecessarily to detract from it, I have figured a pair of these birds, with the hope that ere long, the assertions of the gunners, and those of the authors above mentioned, may be abundantly verified by the slaughter of many geese. In the mean time I must further confess my ignorance of the habits of the Barnacle.

Mr SELBY thus speaks of it in the second volume of his Illustrations:—"The Bernicle is amongst the number of our winter visitants, annually resorting in vast numbers, upon the approach of autumn, to the western shores of Britain, and to the north of Ireland. Upon the Lancashire coast, the Solway Frith, &c. it is very abundant; frequenting the marshy grounds that are occasionally covered by the spring-tides, and such sands as produce the sea-grasses and plants upon which it feeds. Upon the eastern and southern shores of Britain it is of rare occurrence, its place being supplied by its nearly allied congener, the Brent Goose (*Anser Brenta*); which again is as rarely seen upon the opposite coast of the island. Like the rest of the genus, the Bernicle is a very wary bird, and can only be approached by the most cautious manœuvres. It is sometimes shot by moonlight, when it comes on the sands to feed, by persons couched on the ground, or from behind any occasional shelter in such places as the flocks are known to frequent. Its flesh is sweet and tender, and highly esteemed for the table. Upon the approach of spring it leaves our shores for more northern countries, and by the middle of March the whole have retired."

It is known to breed in Iceland, Spitzbergen, Greenland, &c. as well as in Lapland, the northern parts of Russia, and northern Asia. It also inhabits Hudson's Bay and other polar districts of the American continent. During its equatorial or winter migration, it is abundant in Holland, France, and parts of Germany.

The eggs, which I describe from specimens deposited in the rich museum of the University of Edinburgh, measure two inches and seven-eighths by one inch and seven-eighths, and are of a uniform yellowish-cream colour.

I have represented an adult male in spring, and a female of the preceding year.

ANAS ERYTHROPUS, *Linn. Syst. Nat.* vol. i. p. 197.—*Lath. Ind. Ornith.* vol. ii. p. 843.

ANSER LEUCOPSIS, *Ch. Bonaparte*, *Synopsis of Birds of the United States*, p. 377.

BARNACLE GOOSE, *Nuttall, Manual*, vol. ii. p. 355.

Adult Male in Spring. Plate CCXCVI. Fig. 1.

Bill much shorter than the head, higher than broad at the base, somewhat conical, slightly depressed towards the end, narrowed and rounded at the tip. Upper mandible with the dorsal line sloping, the ridge broad and flattened, the sides sloping, the edges soft and obtuse, the oblique marginal lamellæ short, transverse, about thirty on each side, besides minute anterior ones; the unguis roundish, convex, striato-denticulate on the inner edge. Nasal groove elliptical, commencing at the base and extending to the middle of the bill, parallel to the ridge, filled by the soft membrane of the bill; nostrils lateral, submedial, longitudinal, narrow-elliptical, open, pervious. Lower mandible straight, with the angle very long, rather wide, and rounded, the sides sloping rapidly upwards, the edges soft and obtuse, with about thirty-eight distinct lamellæ on an inflected plane.

Head small, oblong, compressed. Neck rather long and slender. Body full, slightly depressed. Feet short, stout, placed a little behind the centre of the body; legs bare a little above the tibio-tarsal joint. Tarsus short, a little compressed, covered all round with angular reticulated scales, which are smaller behind. Hind toe extremely small, with a very narrow membrane; third toe longest, fourth a little shorter, but longer than second; all the toes reticulated above at the base, but with narrow transverse scutella towards the end; the three anterior connected by a reticu-

lated membrane, the outer with a thick margin, the inner with the margin extended into a two-lobed web. Claws small, arched, rather compressed, except that of the middle toe, which is bent obliquely outwards, depressed, with a curved edge. Wings of moderate length, with an obtuse protuberance at the flexure.

Plumage close, rather short, compact above, blended on the head, neck, and lower parts of the body. The feathers of the head and neck very narrow, of the back very broad and abrupt, of the breast and belly broadly rounded. Wings when closed extending about an inch and a quarter beyond the tail, acute; primaries very strong, curved, the second longest; secondaries long, broad, rounded. Tail very short, rounded, of sixteen stiff rounded and acuminate feathers.

Bill, feet, and claws black. Iris dark hazel. Anterior part of the head, including a broad space above the eye, the sides of the head, and the throat, white; the feathers margining the bill, and a line from the bill to the eye, curving below the lower eyelid, and running along the upper, brownish-black. Neck all round glossy black, of which colour are the anterior or dorsal feathers, the scapulars, and the wing-coverts, towards their extremities, while their bases are ash-grey, and their terminal margins white. The shorter feathers on the middle of the back are similar; those on the rump and the tail-feathers deep black. The quills are greyish-black, darker towards the tips, the outer webs more or less tinged with ash-grey. The breast, sides, and abdomen greyish-white, the upper feathers of the sides with more grey; the upper and lower tail-coverts, and the sides of the rump, pure white.

Length 27 inches, extent of wings 4 feet 8 inches; bill along the ridge $1\frac{1}{2}$, in depth at the base $\frac{1}{2}$, in breadth $\frac{1}{2}$; tarsus $2\frac{1}{2}$, middle toe and claw $2\frac{1}{2}$; wing from flexure 17; tail 6; the feet extend beyond the tail $3\frac{1}{2}$ inches. Weight 4 lb. 1 oz.

Adult Female. Plate CCXCVI. Fig. 2.

The Female, which is much smaller, has the same colours, the black parts being tinged with brown, and the tints generally duller.

Length $23\frac{1}{2}$ inches, extent of wings 4 feet 4 inches; the feet extend beyond the tail $2\frac{1}{4}$ inches. Weight 2 lb. 9 oz.

THE HARLEQUIN DUCK.

FULIGULA HISTRIONICA, BONAP.

PLATE CCXCVII. MALE AND FEMALE.

I HAVE the pleasure of presenting you with three figures of the Harlequin Duck, one a male in all the perfection of its spring plumage, the bird having attained complete maturity, another male two years old, and an adult female shot in the pairing season. No figures of the adult male or of the female have, I believe, hitherto been published.

To the south of the Bay of Boston the "Lord and Lady Duck" is rarely seen on our coast; but from that neighbourhood it becomes more plentiful as you proceed eastward; and, on reaching Maine and the entrance of the Bay of Fundy, you may see it at any period of the year among the rocky islands there. It breeds on the Seal, White Head, and Grand Manan Islands, and along the coast of Nova Scotia, Cape Breton, Newfoundland, and Labrador. Many, however, proceed much farther north, for specimens were obtained by Captain JAMES CLARK ROSS in the highest latitudes visited by him. It is extremely attached to certain localities, from which it rarely wanders unless greatly molested, and it thus remains about the islands, or the parts of the coast on which it breeds, unless it be forced off by very severe weather in winter. Few persons shoot it for its flesh; not that it is inferior as food to other deep-diving ducks, but because it is comparatively small, and difficult to be obtained. Not only is it at all seasons remarkably shy and vigilant, but even if approached when on rocks, it plunges into the water the moment its keen eye catches a glance of you, dives with all the agility of the Black Guillemot, and seldom rises within shot. If you shoot at it when passing on wing, even should it be beyond reach, it plunges into the water the moment it perceives the flash,—a habit which is also occasionally observed in the Black Guillemot. It being usually found in flocks of one or two families, or of from twelve to fifteen individuals, some one always acts as a watchful sentinel, whose single note of alarm is sufficient to induce the whole to move off without hesitation. Notwithstanding all this vigilance, however, my party procured a good number of them at different times, by lying in wait for them under cover of some rocks, in

the neighbourhood of which they were known to alight at certain hours of the day, to bask in the sun and dress their plumage. On these occasions a shot seldom failed to kill several, for they fly compactly and alight close together.

On the 31st of May 1833, I found them breeding on White Head Island, and other much smaller places of a similar nature, in the same part of the Bay of Fundy. There they place their nests under the bushes or amid the grass, at the distance of twenty or thirty yards from the water. Farther north, in Newfoundland and Labrador, for example, they remove from the sea, and betake themselves to small lakes a mile or so in the interior, on the margins of which they form their nests beneath the bushes next to the water.

The nest is composed of dry plants of various kinds, arranged in a circular manner to the height of two or three inches, and lined with finer grasses. The eggs are five or six, rarely more, measure two inches and one-sixteenth by one inch and four-and-a-half eighths, and are of a plain greenish-yellow colour. These measurements differ a little from those of an egg sent to me by my friend Mr HEWITSON of Newcastle-upon-Tyne, and which had been found in Ireland by Mr ATKINSON. After the eggs are laid, the female plucks the down from the lower parts of her body, and places it beneath and around them, in the same manner as the Eider Duck and other species of this tribe. The male leaves her to perform the arduous, but no doubt to her pleasant, task of hatching and rearing the brood, and, joining his idle companions, returns to the sea-shore, where he moults in July and August. The little ones leave the nest a few hours after they burst the shell, and follow their mother to the water, where she leads them about with the greatest care and anxiety. When about a week old she walks with them to the sea, where they continue, in the same manner as the Eiders. When discovered in one of these small inland lakes, the mother emits a lisping note of admonition, on which she and the young dive at once, and the latter make for the shores, where they conceal themselves, while the former rises at a good distance, and immediately taking to wing, leaves the place for a while. On searching along the shores for the young, we observed that, on being approached, they ran to the water and dived towards the opposite side, continuing their endeavours thus to escape, until so fatigued that we caught four out of six. When at sea, they are as difficult to be caught as the young Eiders.

The flight of the Harlequin Duck is rapid and generally straight. At

sea it flies at a small height, but when flying over the land, or even when approaching it, should there be any suspicion of danger, it rises to a considerable height. Its food consists of shrimps, small fishes, roe, aquatic insects, and mollusca, which it procures by diving. The flesh is dark, and generally tastes of fish, but that of the female is good during the period of her sojourn on the fresh-water ponds.

The male takes three years to acquire his full plumage, although many individuals breed in the second year. The female is perfect in the second spring. Dr RICHARDSON, in the *Fauna Boreali-Americana*, describes a male killed on the eastern declivity of the Rocky Mountains, whence it appears that at times it goes far inland; and it is very probable that its habits differ greatly in different localities.

ANAS HISTRIONICA, Linn. Syst. Nat. vol. i. p. 204.—Lath. Ind. Ornith. vol. ii. p. 849.

HARLEQUIN DUCK, *ANAS HISTRIONICA*, Wils. Amer. Ornith. vol. viii. p. 139. pl. 72, fig. 4.

FULIGULA HISTRIONICA, Ch. Bonaparte, Synops. of Birds of the United States, p. 394.

CLANGULA HISTRIONICA, HARLEQUIN DUCK, Swains. and Richards. Fauna. Bor. Amer. part ii. p. 459.

HARLEQUIN DUCK, Nuttall, Manual, vol. ii. p. 448.

Adult Male in summer. Plate CCXCVII. Fig. 1.

Bill much shorter than the head, comparatively narrow, deeper than broad at the base, slightly depressed towards the end, which is rounded. Upper mandible with the dorsal line straight and sloping to the middle, then nearly straight, towards the tip decurved, the ridge broad and flat at the base, convex towards the end, the sides convex, the edges soft, with about thirty-five oblique internal lamellæ, the unguis large and elliptical. Nostrils subbasal, elliptical, very large, pervious, nearer the ridge than the edge. Lower mandible flat, with the angle long, rather narrow, rounded, the dorsal line slightly convex, the edges with about forty lamellæ, the unguis elliptical.

Head rather large, compressed. Eyes of moderate size. Neck of ordinary length, thick. Body large, depressed. Wings rather small. Feet very short, placed rather far behind; tarsus very short, compressed, having anteriorly in its whole length a series of small scutella, and above the outer toe a few broad scales, the rest covered with reticular angular scales. Hind toe very small, with a free membrane beneath; anterior toes longer than the tarsus, connected by reticulated membranes, having

a sinus on their free margins, the inner with a narrow lobed marginal membrane, the outer with a thickened edge, the third and fourth about equal and longest, all covered above with narrow scutella. Claws small, arched, obtuse, that of first toe very small, of third largest, and with an inner thin edge.

Plumage dense, soft, blended. Feathers on the fore part of the head very small and rounded, on the upper part of the head slightly elongated, on the neck narrow, on the other parts broad and rounded. Wings rather short, narrow, pointed; primary quills curved, strong, tapering, and pointed, the first and second about equal, and longest, the rest rapidly graduated; secondary short, broad and rounded. Tail very short, cuneate, of sixteen strong tapering feathers.

Bill light yellowish-olive, the tips of the unguis lighter. Iris reddish-brown. Feet light blue, the webs greyish-black, the claws whitish. A broad band from the base of the bill to the occiput bluish-black, margined behind with light yellowish-red, before with white, that colour forming a broad triangular spot on the cheek anterior to the eye. Sides of the head, and neck all round, purplish-blue; a spot of white behind the ear, a curved line on the side of the neck, a complete ring of white below the middle of the neck, with a curved band of the same colour anterior to the wing. All these white markings broadly edged with deep black. The fore part of the back light purplish-blue, the hind part gradually deepening in tint, so as to become almost black, of which colour is the rump all round. Scapulars chiefly white; wing-coverts purplish-blue, as are the alula and primary coverts, the quills dark greyish-brown, the tail greyish-black, a small white spot near the flexure of the wing; a band of white across the wing, formed by the tips of the secondaries, of which the inner have their outer webs principally of the same colour. Fore part of the breast purplish-blue, hind part and abdomen greyish-brown, sides light red; a lateral spot of white near the root of the tail.

Length to end of tail $17\frac{1}{2}$ inches, to end of wings $14\frac{1}{2}$, to end of claws $16\frac{1}{2}$; extent of wings $26\frac{1}{2}$; wing from flexure $7\frac{3}{4}$; tail $3\frac{1}{2}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $1\frac{1}{4}$; middle toe 2, its claw $\frac{1}{8}$. Weight $1\frac{1}{2}$ lb.

Male in the second year.

The young male, after the first moult, is greyish-brown on the back and wings, light brownish-grey beneath. The head and neck are of a

dull leaden blue, the upper part of the head darker. The white spot before the eye is mottled with grey, the line extending over the eye obscure, and the edging of the occiput faint reddish-brown. The two white marks exist on the sides of the neck, but are merely edged with darker blue; there are slight indications of the white collar, and the band before the wing is marked, but much smaller than in the adult. The quills are dark brown, but the secondaries are not tipped with white, of which there are but slight indications on the scapulars. The upper tail-coverts are blackish, the tail bluish-grey, lighter at the end. The bill is dusky, the feet of a leaden tint.

Male in the third year. Plate CCXCVII. Fig. 2.

After the second moult, the male has greatly improved in colouring, although the tints are not nearly so pure as in the old bird. The hind part of the back is still brown, as are the wing-coverts; the sides are dark brownish-grey, with undulated yellowish-red bars. The white collar is not yet complete, but all the white markings on the neck are edged with black; the fore part of the breast is dull grey, the middle yellowish-grey, spotted with bluish-grey. The white bar on the wing is still wanting; the rump is glossy bluish-black, the tail nearly of the same tint.

Adult Female. Plate CCXCVII. Fig. 3.

The principal colour of the female is greyish-brown, deeper on the head and rump, lighter on the fore neck, and mottled with greyish-white on the breast. The quills are dark brown edged with lighter, the tail blackish-grey. There is a large whitish spot mottled with grey before the eye, and another of a purer white behind the ear. Bill and feet dull bluish-grey. Iris brown.

Length to end of tail 16 inches, to end of wings $13\frac{1}{2}$, to end of claws $15\frac{1}{2}$; extent of wings $24\frac{1}{4}$; wing from flexure $8\frac{1}{4}$; tail $3\frac{1}{2}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; tarsus $1\frac{1}{4}$; middle toe 2, its claw $\frac{1}{8}$. Weight $1\frac{1}{4}$ lb.

THE RED-NECKED GREBE.

PODICEPS RUBRICOLLIS, LATH.

PLATE CCXCVIII. MALE AND YOUNG.

I HAVE found this species along the coast from New York to Maine, in the winter season, when old and young were generally in about equal number. At Boston I procured several specimens. On the Bay of Fundy, and among the islands at its entrance, I saw these Grebes already in their spring plumage, it being then the beginning of May. On one occasion our boat was rowed over an eddy in which a pair had dived in search of food. On emerging they were only a few yards distant; but, although several guns were fired at them, they escaped unhurt, for they instantly dived again, passed under the boat at the depth of about a yard, and did not rise until at a safe distance. None of us could conceive how they had managed to elude us, for as they were so near, the shot threw up the water in its course, and I had expected to find them completely mangled.

Although I have seen this species far up our salt-water bays, I never observed it on any of the southern fresh-water ponds or rivers. Dr RICHARDSON states, in the *Fauna Boreali-Americana*, that it "is very common in the fur countries, frequenting every lake with grassy borders." M. TEMMINCK says "that they inhabit rivers, lakes, and the borders of the sea, but in greater number on fresh-waters; are tolerably common in different parts of Europe; feed on small fish, fry, amphibious reptiles, insects, and vegetables; form their nests of the same materials, and place it in the same situations as the Crested Grebe, and lay three or four eggs." An egg lent me by my esteemed friend Mr YARBELL, measured two inches in length by one inch and a quarter in breadth, and was of a uniform pale greenish-white.

PODICEPS RUBRICOLLIS, Lath. Ind. Ornith. vol. ii. p. 783.—*Ch. Bonaparte*, Synopsis of Birds of the United States, p. 417.—*Swains. and Richards*, Fauna Bor. Amer. part ii. p. 411.

RED-NECKED GREBE, *Nuttall*, Manual, vol. ii. p. 253.

Adult Male. Plate CCXCVIII. Fig. 1.

Bill about the length of the head, straight, rather slender, compressed,

acute. Upper mandible with the dorsal line straight and slightly sloping to the middle, then slightly convex, the ridge convex, the sides sloping, towards the end erect and convex, the edges acute and inflected. Nasal groove extending to the middle of the mandible; nostrils subbasal, linear-elliptical, pervious. Lower mandible with the angle long and extremely narrow, the dorsal line ascending and straight, the sides erect, slightly convex, the edges sharp, inflected, the tip narrow, very acute.

Head of moderate size, oblong, compressed. Neck long and slender. Body depressed. Feet large, placed very far behind; tibia feathered almost to the joint; tarsus short, extremely compressed, anteriorly with a narrow scutellate ridge, laterally with very broad scutella, posteriorly with a narrow ridge having a double row of small prominent scales. Hind toe very small, with an inferior small membrane; fore toes long, the outer longest, scutellate above, united at the base by short webs, externally margined with narrowish, internally with broad, lobe-shaped expansions, which are marked with parallel oblique lines, and crenate on the edges. Claws flattened, that of the middle toe broadest, with an extremely thin broad terminal edge.

Plumage of the head and neck very soft and downy, of the breast and sides silky and highly glossed, of the abdomen and rump downy, of the upper parts imbricated, but with loose edges. Wings small; primaries much curved, the first longest, the second almost equal, the inner secondaries extending beyond the first primary when the wing is closed. Tail a small tuft of loose feathers. On the head is a tuft of elongated feathers on each side behind the eye, and those of the posterior part of the cheek are also elongated.

Bill brownish-black, bright yellow at the base. Iris carmine. Tarsi and toes greenish-black externally, yellow on the inner side, the edges of the lobes dusky. Upper part of the head greyish-black, lower part ash-grey, with a white line from the base of the lower mandible to beyond the eye. Hind part of the neck, and upper parts generally, greyish-black; the feathers edged with pale brown; the edge of the wing and the outer secondaries white. The fore part and sides of the neck rich brownish-red; the breast and sides are of a silvery white, faintly marked with grey.

Length to end of rump-feathers $18\frac{1}{2}$ inches, to end of wings $16\frac{1}{2}$, to end of claws 24; extent of wings 32; wing from flexure $7\frac{1}{4}$; bill along the back $1\frac{3}{4}$, along the edge of lower mandible $2\frac{3}{8}$; tarsus 2; outer toe $2\frac{1}{2}$, its claw $\frac{1}{4}$. Weight 23 oz.

Young after first moult. Plate CCXCVIII. Fig. 2.

Bill bright yellow, the ridge of the upper mandible dusky. Iris pale yellow. Feet as in the adult. The upper part of the head blackish-grey, the hind neck, and the upper parts generally, of the same colour, but darker towards the rump; the edge of the wing and the outer secondaries greyish-white, the latter grey towards the end. The lower parts greyish-white.

THE DUSKY PETREL.

PUFFINUS OBSCURUS, Cuv.

PLATE CCXCIX. MALE.

ON the 26th of June 1826, while becalmed on the Gulf of Mexico, off the western shores of Florida, I observed that the birds of this species, of which some had been seen daily since we left the mouth of the Mississippi, had become very numerous. The mate of the vessel killed four at one shot, and, at my request, brought them on board. From one of them I drew the figure which has been engraved. The notes made at the time are now before me, and afford me the means of presenting you with a short account of the habits of this bird.

They skim very low over the sea in search of the floating bunches of marine plants, usually called the Gulf Weed, so abundant here as sometimes to occupy a space of half an acre or more. In proceeding, they flap their wings six or seven times in succession, and then sail for three or four seconds with great ease, having their tail much spread, and their long wings extended at right angles with the body. On approaching a mass of weeds, they raise their wings obliquely, drop their legs and feet, run as it were on the water, and at length alight on the sea, where they swim with as much ease as ducks, and dive freely, at times passing several feet under the surface in pursuit of the fishes, which, on perceiving their enemy, swim off, but are frequently seized with great agility. Four or five, sometimes fifteen or twenty of these birds, will thus alight, and, during their stay about the weeds, dive, flutter, and swim, with all the gaiety of a flock of ducks newly alighted on a pond. Many gulls of different kinds hover over the spot, vociferating their anger and disappointment at not being so well qualified for supplying themselves with the same delicate fare. No sooner have all the fishes disappeared than the Petrels rise, disperse, and extend their flight in search of more, returning perhaps in a while to the same spot. I heard no sound or note from any of them, although many came within twenty yards of the ship and alighted there. Whenever an individual settled in a spot, many others flew up directly and joined it. At times, as if by way of resting themselves, they alighted,

swam lightly, and dipped their bills frequently in the water, in the manner of Mergansers.

I preserved the skins of the four specimens procured. One of them I sent to the Academy of Natural Sciences of Philadelphia, by Captain JOHN R. BUTLER, of the ship *Thalia*, then bound from Havannah to Minorca. Two others were presented to my excellent friend Dr TRAILL, on my first becoming acquainted with him at Liverpool.

I found the wings of this species strong and muscular for its size, this structure being essentially requisite for birds that traverse such large expanses of water, and are liable to be overtaken by heavy squalls. The stomach resembles a leather purse, four inches in length, and was much distended with fishes of various kinds, partially digested or entire. The œsophagus is capable of being greatly expanded. Some of the fishes were two and a half inches in length, and one in depth. The flesh of this Petrel was fat, but tough, with a strong smell, and unfit for food; for, on tasting it, as is my practice, I found it to resemble that of the porpoises. No difference is perceptible in the sexes.

While on board the United States' Revenue Cutter the *Marion*, and in the waters of the Gulf Stream opposite Cape Florida, I saw a flock of these birds, which, on our sailing among them, would scarcely swim off from our bows, they being apparently gorged with food. As we were running at the rate of about ten knots, we procured none of them. I have also seen this species off Sandy Hook.

PROCELLARIA OBSCURA, Lath. Ind. Ornith. vol. ii. p. 828.

PUFFINUS OBSCURUS, Ch. Bonaparte, Synops. of Birds of the United States, p. 371.

DUSKY PETREL, Lath. Synops. vol. iv. p. 416.—Nuttall, Manual, vol. ii. p. 337.

Adult Male. Plate CCXCIX.

Bill about the length of the head, straight, somewhat cylindrical, the tips curved. Nostrils tubular, separate, inclosed in a horny sheath, and dorsal, the outline straight, curved on the unguis, the sides nearly erect, convex, the edges sharp, hard, and inflected, the tip decurved, strong. Lower mandible straight, the angle very narrow and extending nearly to the tip, the dorsal line beyond it decurved, the sides convex and inclining inwards, the edges sharp and inflected.

Head of moderate size. Neck of ordinary length; body ovate. Feet stout; tibia bare a short way above the joint; tarsus of moderate length,

rather stout, reticulate; hind toe a very slight knob, with a small conical claw; fore toes long, slender, connected by reticulated webs with concave margins, the outer toe slightly longer than the third. Claws small, slightly arched, compressed obtuse.

Plumage soft, full; the feathers rounded, those of the back and wings rather compact. Wings long; primaries tapering, rounded, the first longest, the rest rapidly graduated; secondaries of moderate length, rounded. Tail rather short, much rounded, of twelve feathers.

Bill light blue, the tips black, mouth light blue. Edges of eyelids light blue, iris bluish-black. Outside of tarsus and toes indigo-black, inside and webs pale yellowish-flesh-colour; claws bluish-black. The upper parts are sooty black, the lower pure white.

Length to end of tail 11 inches, to end of wings $10\frac{1}{2}$, to end of claws $11\frac{1}{4}$; extent of wings $26\frac{1}{2}$; bill along the back $1\frac{4}{12}$, along the edge of lower mandible $1\frac{2}{4}$; tarsus $1\frac{1}{2}$; outer toe 2, its claw $\frac{2}{12}$.

THE GOLDEN PLOVER.

CHARADRIUS PLUVIALIS, LINN.

PLATE CCC. ADULT IN SPRING AND IN WINTER, AND VARIETY.

THE Golden Plover spends the autumn, winter, and part of the spring, in various portions of the United States, appearing in considerable numbers both along the coast and in the interior, and not unfrequently on our highest grounds. A much greater number, however, proceed in severe winters beyond the limits of our Southern States, and the partial migrations of this species are much influenced by the state of the weather. They are more abundant along the sea shores of the Middle and Eastern Districts, from the middle of April to the beginning of May, whereas in autumn they range over the interior, and more especially the western prairies. In the early part of May they congregate in immense flocks, and commence their journey toward more northern regions, where they are said to breed.

The account which WILSON gave of this species refers in part to the "Bull-headed Plover," *Charadrius helveticus*, although his figure cannot be mistaken for that of the latter, even in its first autumnal dress. But the Editor of the second edition of WILSON's work has rejected the Golden Plover as an American Bird, although he might have frequently seen it in the very markets of Philadelphia. The Prince of Musignano corrected this error, in his valuable "Observations on the Nomenclature of WILSON's Ornithology." Mr SELBY, in speaking of the Golden Plover, gives it as his opinion, that the bird so called in America, differs from that of Europe. This opinion, however, I cannot consider as correct, as I have seen and examined the Golden Plovers of both countries, and have found their manners, tone of voice, and appearance, precisely similar.

This bird moves on the ground with sprightliness. When observed, it often runs with considerable rapidity to some distance, suddenly stops short, nods once or twice, vibrating its body at the same time, and if it should imagine itself unnoticed, it often lies down and remains crouched until the danger is over. At the time of their departure from the north, and while on the sands or mud-bars on the sea shore, they often raise their wings as if to air them for a few moments. While searching for food, they move in a direct manner, often look sideways toward the ground, and

pick up the object of their search by a peculiar bending movement of the body. They are frequently observed to pat the moist earth with their feet, to force worms from their burrows. In autumn they betake themselves to the higher grounds, where berries as well as insects are to be met with, and where they find abundance of grasshoppers.

When travelling to a considerable distance, the Golden Plover flies at the height of from thirty to sixty feet, in a regular manner, with considerable velocity, the flock, when large, forming an extended front, and moving with regular flappings, an individual now and then uttering a mellow note. Before alighting they often perform various evolutions, now descending and flying swiftly over the ground, then curving upwards or sidewise, closing and extending their ranks, until the sportsman is often tired of watching them, and, after all, the flock, just when he expects it to alight, may suddenly shoot off and fly to a distance. When they alight within shooting distance, the moment their feet touch the ground is the critical one, for they are generally in a compact body, and almost immediately afterwards they disperse. I have often observed them while flying from one place to another, suddenly check their course for a moment or two, as if to look at the objects below, in the manner of Curlews.

While at New Orleans, on the 16th of March 1821, I was invited by some French gunners to accompany them to the neighbourhood of Lake St John, to witness the passage of thousands of these birds, which were coming from the north-east, and continuing their course. At the first appearance of the birds early in the morning, the gunners had assembled in parties of from twenty to fifty at different places, where they knew from experience that the Plovers would pass. There stationed, at nearly equal distances from each other, they were sitting on the ground. When a flock approached, every individual whistled in imitation of the Plover's call-note, on which the birds descended, wheeled, and passing within forty or fifty yards, ran the gauntlet as it were. Every gun went off in succession, and with such effect that I several times saw a flock of a hundred or more reduced to a miserable remnant of five or six individuals. The game was brought up after each volley by the dogs, while their masters were charging their pieces anew. This sport was continued all day, and at sunset, when I left one of these lines of gunners, they seemed as intent on killing more as they were when I arrived. A man near the place where I was seated had killed sixty-three dozens. I calculated the number in

the field at two hundred, and supposing each to have shot twenty dozen, forty-eight thousand Golden Plovers would have fallen that day.

On inquiring if these passages were of frequent occurrence, I was told that six years before, such another had occurred immediately after two or three days of very warm weather, when they came up with a breeze from the north-east. Only some of the birds were fat, the greater number of those which I examined being very lean; scarcely any had food in their stomach, and the eggs in the ovaries of the females were undeveloped. The next morning the markets were amply supplied with Plovers at a very low price.

I have again applied to my friend WILLIAM MACGILLIVRAY for an account of the manners of this species during the breeding season, which I now lay before you.

“ The Golden Plover is in many parts of Scotland, but especially in the Northern Highlands, and in the Hebrides, a very common bird. When the weather begins to improve towards the end of spring, these birds may be seen flying over the shores or fields in their vicinity, at a great height, in loose flocks, which now extend into a wide front, now form irregular angular lines, move with a quiet and regular flight, frequently emitting their peculiar soft notes, and at times uttering a singular cry, somewhat resembling the syllables *courlie-wee*. These flocks are leaving their winter haunts and returning to the inland moors, over which they disperse in pairs. In the beginning of May, should you traverse one of the dreary heaths, you will often hear the plaintive cry of the Plover, mingling, perhaps, with the feeble cheep of the Dunlin, or the loud scream of the Curlew. Before you have advanced to any considerable distance, there may come up and alight on some mossy knoll beside you, a male, clad in his beautiful summer vesture of black and green. You may approach him within ten paces if you are inclined, and in some districts it would be easy for one to shoot many dozens of them in a day at this season. After incubation has commenced, the females seldom make their appearance on such occasions. Whether the males assist their mates at that time or not, they certainly do not forsake them. The nest is a slight hollow in a tuft of moss, or on a dry place among the heath, irregularly strewed with fragments of withered plants. The eggs, of which the full number is four, are placed, as usual in this genus, with their small ends together. They are much larger and

more pointed than those of the Lapwing, being at an average two inches and one-twelfth in length, and an inch and a-half in their greatest transverse diameter. The shell is thin and smooth, of a light greyish-yellow or cream-colour, irregularly spotted, dotted and patched with dark brown, and sometimes having a few light purple spots interspersed, the markings larger towards the broadest part. The young leave the nest immediately after they burst the shell, and conceal themselves by lying flat on the ground. At this period, the female evinces the greatest anxiety for their safety, and will occasionally feign lameness to entice the intruder to pursue her. I have several times seen one fly off to a considerable distance, alight in a conspicuous place, and tumble about as if in the agonies of death, her wings flapping as if they had been fractured or dislocated. The eggs are delicious, and the young birds when fledged not less so.

“ When the young are able to fly, the Plovers collect into flocks, but remain on the moors until the commencement of winter, when they advance towards the pasture lands, and in severe weather betake themselves to the low grounds near the shores. During continued frosts, they feed on the sands and rocky shores at low water, and in general during the winter remain at no great distance from the sea.

“ When a flock alights at this season on a field, the individuals disperse, run about with great activity, and pick up their food. Sometimes one finds them so tame that he can approach within fifteen yards, and I have often walked round a flock several times in order to force them together before shooting. In windy weather they often rest by lying flat on the ground, and I have reason to think that at night this is their general practice. In the Hebrides I have often gone to shoot them at night by moonlight, when they seemed as actively engaged as by day, which was also the case with the Snipes; but I seldom succeeded in my object, it being extremely difficult to estimate distances at night. The numbers that at this season frequent the sandy pastures and shores of the Outer Hebrides is astonishing.

“ The Golden Plover, although occasionally addicted to wading, evidently prefers dry ground, in which respect it differs essentially in habits from the *Totani* and *Limosæ*. It frequently probes the moist sands, and in summer the dry cow dung on the moors and upland pastures is seen perforated by its bill. It affords delicious eating, and in my opinion is scarcely inferior in this respect to the Woodcock.”

CHARADRIUS PLUVIALIS, *Linn. Syst. Nat.* vol. i. p. 254.—*Lath. Ind. Ornith.* vol. ii. p. 740.—*Ch. Bonaparte*, *Synopsis of Birds of the United States*, p. 297.

GOLDEN PLOVER, *CHARADRIUS PLUVIALIS*, *Wils. Amer. Ornith.* vol. vii. p. 71. pl. 59. fig. 5., Winter.—*Nuttall*, *Manual*, vol. ii. p. 16.

Adult Male in Spring. Plate CCC. Fig. 1.

Bill shorter than the head, straight, subcylindrical. Upper mandible with the dorsal line straight and slightly sloping for two-thirds of its length, then bulging a little and curving to the tip, which is rather acute, the sides flat and sloping at the base, convex towards the end, where the edges are sharp and inclinate. Nasal groove extended along two-thirds of the mandible, filled with a bare membrane; nostrils basal, linear, in the lower part of the membrane, open and pervious. Lower mandible with the angle long, narrow, but rounded, the sides at the base sloping outwards and flat, the dorsal line ascending and slightly convex, the edges sharp and involute towards the narrow tip.

Head of moderate size, oblong, rather compressed, the forehead rounded. Eyes large. Neck rather short. Body ovate, rather full. Wings long. Feet rather long, slender; tibia bare for a considerable space; tarsus rather compressed, covered all round with reticulated hexagonal scales; toes slender; the hind toe wanting; third or middle toe longest, fourth considerably longer than the second, all scutellate above and marginate, the outer connected with the middle toe by a membrane as far as the second joint; claws small, compressed, slightly arched, slender but obtuse at the end, the inner edge of the middle claw dilated.

Plumage soft, blended, slightly glossed, the feathers rounded. Wings long and pointed; primary quills tapering, the first longest, the second a little shorter, the rest rapidly graduated; outer secondaries short, broad, obliquely rounded, inner tapering and elongated. Tail rather short, rounded, of twelve rounded feathers.

Bill black. Iris brown. Feet bluish-grey. The upper part of the head, the fore part of the back, and the scapulars are beautifully variegated with brownish-black and bright yellow, the latter in spots along the edges of the feathers. The hind part of the back greyish-brown, variegated with yellow of a duller tint; the tail brown, barred with white. The wings are hair-brown, the smaller coverts spotted with yellowish-white, the primary coverts and secondaries tipped with white. The in-

ner secondaries like the scapulars. Part of the forehead, the loreal space, a band over the eye, and the throat, are greyish-white; the sides of the neck and body variegated with brown, dull white and yellowish. The breast and a broad band down the fore-neck, are brownish-black, the latter margined on each side with white. Axillar feathers, and lower tail-coverts white.

Length to end of tail $10\frac{1}{4}$ inches, to end of wings $10\frac{1}{4}$, to end of claws $11\frac{1}{2}$; extent of wings $22\frac{3}{8}$; wing from flexure 7; tail $3\frac{1}{2}$; bill along the back $1\frac{1}{2}$, along the edge of lower mandible $1\frac{2}{3}$; bare part of tibia $\frac{6}{12}$; tarsus $1\frac{7}{8}$; middle toe $1\frac{1}{2}$, its claw $\frac{1}{4}$. Weight $5\frac{1}{2}$ oz.

Adult in winter. Plate CCC. Fig. 2.

The black on the lower parts is peculiar to the breeding season; and after the autumnal moult, they become of a light greyish colour, spotted and streaked with deep grey. In other respects the plumage is similar to that described above.

Length to end of tail $10\frac{3}{4}$, to end of claws $11\frac{7}{8}$, extent of wings $22\frac{5}{8}$. Weight $4\frac{1}{2}$ oz.

Light coloured variety. Plate CCC. Fig. 3.

Bill and feet greyish-blue. Iris deep brown. Upper part of head and back mottled with black and pale yellow; wing-coverts greyish, with white and dusky spots, as are the sides of the head and the throat; a broad band of white over the eye; fore part of neck pale grey, fading into pale cream colour and white; the breast and fore-neck with large spots of black.

This individual was killed in the breeding season.

REMARKS ON THE FORM OF THE TOES OF BIRDS.

ALTHOUGH naturalists have laboured, more especially since the time of the great LINNÆUS, who gave an impulse to the study of natural history unparalleled in that of any other science, to make us acquainted with animals of every class; and although much has been done by them in ornithology in particular, it requires little knowledge to be enabled to say with truth that a great deal more remains to be done. To take an apparently trivial example, let us look to the tips of the toes of birds, and we shall no doubt find much that is curious, and much that has been entirely overlooked. The examination of those parts was suggested to me by the following occurrence.

On the 21st of March 1816, while I was residing at Henderson in Kentucky, great flocks of Golden Plovers happening to be passing from their winter toward their summer haunts, I procured a good number of them. While engaged in drawing a fine specimen, I observed something beneath the claws, which induced me to look more particularly to that part of the toes, when I found there what might be called a second but smaller claw, equally horny with the part properly so called. I examined several others, and, finding them all alike in this respect, I mentioned the circumstance to a friend, who agreed with me in thinking it very curious. Since that period I have generally, on procuring a bird of any kind, looked to its toes, and I have found many species, both of the genus *Charadrius* and of other Grallæ, similarly supplied with double claws.

Although I use this term, however, let it not be supposed that I consider the parts in question as really subsidiary or secondary claws; for as they are not furnished with a central bone, or process either from the last phalanx or that next to it, they cannot be truly considered as such, however much they may sometimes resemble them.

But, in order to explain to you what I mean, let us take a general view of the subject. If we examine the foot of any common land bird, a domestic fowl for example, we observe that the extremity of its toes under the nail are rounded, and covered with quincuncial papillæ, generally flattened. The extreme degree of this rounded form is seen in the *Eagles* and *Hawks*, of which the end of the toe projects beneath the claw, having

the appearance of a large round knob or rather pad. It is not, however, my intention at present to describe the structure of this part in the land birds. I may however remark, that in them, as well as in the others, the examination of the parts in question will materially aid in limiting the number of merely nominal species, by disclosing an identity of form, as well as in separating species that have been confounded, by shewing a diversity, as I have had occasion to observe, in several species of both kinds.

In the aquatic tribes numerous remarkable modifications are observed. Beginning with those which have the extremity of the toe largest and most rounded, we find that the *Geese*, *Ducks*, and *Gulls*, supply good examples. Thus in *Larus marinus*, the protuberance beneath the claw is rounded, and covered with small rounded and flattened papillæ, of which there is a semicircular terminal series of a larger size, as is represented by fig. 1.



Fig. 1.



Fig. 2.

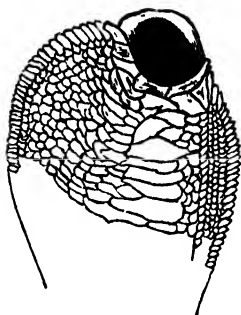


Fig. 3.

The *Pelicans* and *Gannets* are similar in this respect to the *Gulls*, as are the *Cormorants*, which, however, have the terminal pad projecting and more pointed. In the *Guillemots*, also, it is rounded, with small distinct rounded scales. In the *Frigate Bird*, in which the webs are short, and do not modify the pads, the terminal scales are similar to those of the *Gulls*. In the genus *Lestris*, they are smaller, and obscured by the webs, their papillæ smaller and more pointed. In the *Terns*, they are similar to those of the *Gulls*, but narrower, and with the papillæ large. In *Phaeton athercus*, the webs appear to obliterate the terminal papillæ, which are very small. In all these, the extremities of the toes are more or less rounded, and terminated just beneath the claw by a semicircular series of scales larger than those immediately behind.

In the *Auks*, however, there is a large scale or plate, on the inner side of the middle toe, and then a series of narrow scales. In *Mormon*

glacialis, of which the end of the middle toe is represented by fig. 2, there is a single much recurved narrow horny plate, behind which is a narrow series of oblong scales. In the genus *Puffinus*, there is also a single short rounded terminal scale or plate.

The *Colymbi* or *Divers* have the end of the toe very narrow and flat, with a single small rounded terminal plate, and numerous small scales behind it. These birds have the claws depressed, a form which shews its extreme development in the *Grebes*. Of the extremity of the middle toe of one of these, *Podiceps cristatus*, fig. 3. is a representation. Here the claw is almost quite flat, and the end of the toe beneath it is not elevated or rounded as in almost all the other genera, but perfectly depressed, and having its outline concave, but still, as usual, with a series of large scales.

If we now look to the *Grallæ*, we shall find similar modifications. Fig. 4 represents the lower surface, and the lateral aspect of the extremity of the middle toe of *Ardea rufescens*, which agrees, in a general point of view, with that of the other species of the genus, as well as with that of the *Cranes*. The pad here is rounded, and terminated by a semicircle of larger scales. In the genera *Numenius* and *Limosa*, the arrangement is similar, the terminal scales being much smaller in the latter than in the former, and two of the lateral scales enlarged. In the genera *Tringa*, *Scolopax* and *Gallinula*, the arrangement is similar. All these genera exhibit more or less of the rounded form, terminated by a series of larger scales.

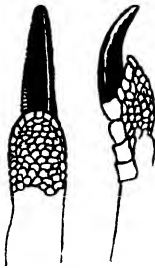


Fig. 4.

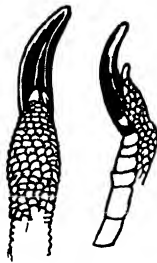


Fig. 5.



Fig. 6.

In *Ibis alba* the extremity is narrowed and terminated by a small rather pointed horny plate, divided into two unequal portions, as represented by fig. 5. The *Tantalus* have this part also narrowed at the end, flattened, and terminated by a semicircular slightly projecting plate or hooflet. The same appearance is presented in *Hematopus palliatus*, in

which, however, the extremity is more rounded, the semicircular plate more decurved, and concave above, as represented by fig. 6. In *Rallus*

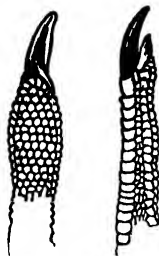


Fig. 7.



Fig. 8.



Fig. 9.

elegans, fig. 7, and the *Rails* generally, the terminal plate is similar, but narrow and rather curved upwards. It is in the genera *Strepsilas*, *Charadrius* and *Totanus*, that the terminal plate, being narrower, more elongated and more pointed, assumes more especially the semblance of a second claw. The extremities of the middle toes of *Totanus semipalmatus* and *Charadrius Pluvialis*, are represented by figs 8. and 9.

Having now reached the point from which I started, according to the approved method of reasoning in a circle, or if not, of exhibiting natural objects in a circular arrangement, I take my leave, hoping that when I again request your indulgence, I shall be enabled to present you with something equally curious, and perhaps better calculated to induce you to extend your inquiries into the neglected parts of the structure of those objects, whose investigation cannot fail to raise our minds towards the Being who framed the beautiful and harmonious system of which we form a part.

ERRATA.

- Page 211, line 4, for Traders read Waders
 — 222, . . 2, ... Sir James Ross, read Sir John Ross,
 — 273, ... 22, ... Orelans read Orleans
 — 317, ... 13 from bottom, for even read not only
 — 325, ... 22, for Santie read Santee

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